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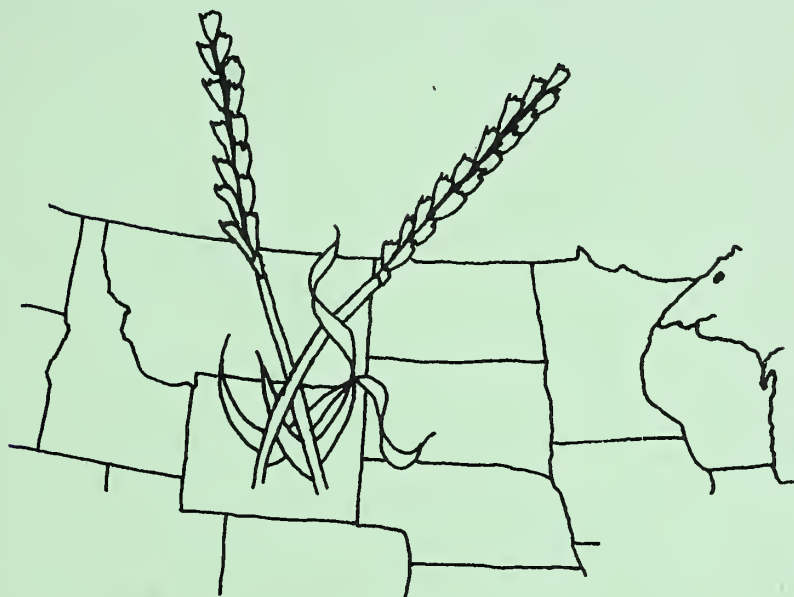


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HARD RED SPRING WHEAT



QUALITY REPORT

Physical, Chemical, Milling, and Baking Characteristics

1967 CROP

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION

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UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Crops Research Division

Preliminary Report Not For Publication^{1/}

REPORT OF PHYSICAL, CHEMICAL, MILLING, AND BAKING EXPERIMENTS

WITH HARD RED SPRING WHEAT

1967 CROP^{2/}

by

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^{1/} This is a progress report of cooperative investigations containing data, the interpretation of which may be modified with additional experimentation. Therefore, publication, display, or distribution of any data or any statements herein should not be made without prior written approval of the Crops Research Division, Agricultural Research Service, United States Department of Agriculture and the cooperating agency or agencies concerned.

^{2/} Investigations of the Crops Research Division, Agricultural Research Service, in cooperation with the North Dakota Agricultural Experiment Station. The samples were obtained from the cooperative experiments with the State Agricultural Experiment Stations in the spring wheat region.

Hard Red Spring and Durum Wheat Quality Laboratory
Fargo, North Dakota
CR-28-68
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COOPERATING AGENCIES, STATIONS, AND PERSONNEL

The cooperating agencies and stations conducting the varietal plot and nursery experiments from which the 1967 spring wheat samples were received are listed below:

Colorado Agricultural Experiment Station:

Center and Fort Collins.

Minnesota Agricultural Experiment Station:

Crookston, Morris, St. Paul, and Waseca.

Montana Agricultural Experiment Station:

Bozeman, Dutton, Havre, and Sidney.

North Dakota Agricultural Experiment Station:

Carrington, Dickinson, Fargo, Langdon, Minot,
and Williston.

South Dakota Agricultural Experiment Station:

Highmore and Watertown.

Wisconsin Agricultural Experiment Station:

Madison.

Wyoming Agricultural Experiment Station:

Laramie and Sheridan.

A complete list of all cooperating agencies, stations, and personnel for the year will be found in the report by Dr. K. L. Lebsock, "Results on Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1967."



INTRODUCTION

Samples of standard varieties and many of the new strains of hard red spring wheat grown in cooperative experiments in the spring wheat region of the United States^{3/} have been milled each year by the USDA. The flours were assayed chemically and physically and baked into bread to determine the quality characteristics. The purpose of this report is to make available to the cooperators, quality data on the standard varieties and new strains of hard red spring wheat from the 1967 crop.

The same general format and techniques were used in evaluating the wheats as outlined in quality reports for previous years. The data contained in this report are comparable to data in past reports and, where applicable, average results and also the average results of the 1966 crop are compared.

The format adopted in 1962 shows an evaluation of the samples in three categories: kernel characteristics, milling performance, and baking evaluation. For the sake of brevity, only the apparent deficiencies or outstanding characteristics for the varieties are given. An additional column, General Evaluation, on the tables indicating the Uniform Regional Nursery Averages and Sawfly Yield Nursery Averages, gives the overall performance of the variety for the samples submitted. It is hoped that with the use of this format one can quickly ascertain the various characteristics of the sample and any outstanding features or deficiencies which are apparent. Again, for physical characteristics, the mixogram data are given with no specific comments made regarding the patterns, since reference mixograms for each of the general types are presented at the end of the report.

Generally, the crop was grown under somewhat unusual conditions in that there was ample moisture at planting time but little or no rainfall during the growing season. Fortunately, sufficient subsoil moisture was available to produce a good crop. The unusual growing season was apparently reflected in the low mineral content of the wheats. Although the flour mineral content was lower than last year, it was the same as the 1965 crop and not as low as would be expected from the wheat mineral content. The average extraction was lower than the 1966 crop. The baking performance was slightly down from the 1966 crop showing lower absorption, loaf volume, and grain, although the dough was slightly stronger and mixing requirements longer. The lower absorption was a reflection of the lower protein content, averaging 1.5% lower than the 1966 crop.

The oxidation requirements for the 1967 crop were higher than the 1966 crop, requiring approximately 10 p.p.m. bromate. Some samples even showed the need for more oxidation.

^{3/} Lebsock, K. L., "Results on Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1967." Crops Research Division, Agricultural Research Service, USDA.

SOURCE OF THE SAMPLES

Tests were performed on 491 samples received from advanced yield nurseries, field plots, uniform regional nurseries, and sawfly yield nurseries of the 1967 crop. These samples originated in 7 states: Colorado, Minnesota, Montana, North Dakota, South Dakota, Wisconsin, and Wyoming. Twenty-one stations from these states were represented, namely, Center and Fort Collins in Colorado; Crookston, Morris, St. Paul, and Waseca in Minnesota; Bozeman, Dutton, Havre, and Sidney in Montana; Carrington, Dickinson, Fargo, Langdon, Minot, and Williston in North Dakota; Highmore and Watertown in South Dakota; Madison in Wisconsin, and Laramie and Sheridan in Wyoming.

Due to apparent differences in the characteristics of the wheats and protein contents, no samples were blended this year, except the Colorado samples which were blended before receipt.

On page 5 are listed the spring wheats which were included in the 1967 Uniform Regional Nursery trials. The variety or cross, the station which developed the variety, the state selection number, and the C.I. number are given.

In Table 24 are given the average data for the Uniform Regional Nursery samples. The data for kernel characteristics, milling performance, and mixograms are arithmetical averages of the individual samples. However, the baking data were obtained from blends of equal proportions of the individual flours for each sample from the 18 stations.

In Table 31 are given the average data for the Sawfly Yield Nursery samples obtained from the arithmetical averages of the individual samples.

ENTRIES FOR THE 1967 UNIFORM REGIONAL HARD RED SPRING WHEAT NURSERY

Entry No.	Cross or Variety	Sel. No.	C.I. No.	New or Old	Developing Station
1	Marquis		3641	Old	Canada
2	Thatcher		10003	"	Minnesota
3	Selkirk		13100	"	Canada
4	Justin		13462	"	N. Dak.
5	Chris		13751	"	Minnesota
6	Manitou		13775	"	Canada
7	M2824 ² x II-50-72	II-55-11	13773	"	Minnesota
8	M2824 ² x II-50-72	II-55-16	-	"	"
9	Tc x Ftn-Hry	II-56-40	-	"	"
10	Crim x II-53-521	II-59-91	-	"	"
11	(II-50-17 x 51-2688)ND4-Rsc	61-107	13937	"	N. Dak.
12	[Penjamo 62 x (Hry ⁷ xP54)x(K184xWis250 ⁷)] x(K184xWis250 ⁴)	Wis.261	-	"	Wisconsin
13	"	Wis.270	-	New	"
14	"	Wis.271	-	"	"
15	RI4125 x RI4008*	RI4200	-	"	Canada
16	Justin x ND81	ND363-1	-	"	N. Dak.
17	Justin x Conley-ND122	ND478	-	"	"
18	Justin x ND333	ND479	-	"	"

* RI4125 is Tc⁷-Ftn x Tc⁶-KF; RI4008 is Tc² x Ftn-Tc.

METHODS

The terminology and methods used are briefly described below:

Test Weight Per Bushel - The weight per Winchester bushel of cleaned, dry, scoured wheat. To determine the dockage-free test weight on a comparable sample, approximately one pound per bushel should be subtracted from the value given.

1000 Kernel Weight - The 1000 kernel weight was determined by counting the number of kernels in a 10 gram sample of cleaned, picked wheat with an ASCO Seed Counter^{4/}.

Kernel Size - The percentages of the size of the kernels (large, medium, and small) were determined on a wheat sizer as described by Shuey^{5/}.

The sieves of the sizer were clothed as follows:

Top Sieve	- Tyler # 7 with 2.92 mm. opening
Middle Sieve	- Tyler # 9 with 2.24 mm. opening
Bottom Sieve	- Tyler #12 with 1.65 mm. opening

Potential Yield - The potential yield was determined by multiplying the percentages of the overs of each sieve #7, #9, and #12, by the value of 78%, 73%, and 68%, respectively. The accumulation percentage is given as the potential yield.

Milling - The samples were cleaned by passing the wheat over an Emerson Kicker and Dockage Tester and through a modified Forster Scourer Model 6. The clean dry samples were pre-tempered to 12% moisture for at least 72 hours; then tempered to 16% moisture and allowed to stand overnight prior to milling.

All samples except the advanced yield nursery and field plot samples were milled on a Brabender Quadrumat Junior Mill. The mill was equipped with a #18 wire on the drum sieve. The troughs of the #18 wire were rebolted on a Strand Sifter equipped with a #60 Tyler sieve. The sample was sifted for 1 minute. The troughs of the #60 wire were classified as flour and this was the material tested. The overs of the #18 wire were classified as bran and the troughs of the #18 wire and overs of the #60 Tyler sieve as crude shorts.

The field plot and advanced yield nursery samples were milled on a Buhler Continuous Experimental Mill. This mill has been slightly modified

^{4/} Mention of a trademark name or a proprietary product does not constitute a guarantee or warranty of the product by the USDA, and does not imply its approval to the exclusion of other products that may also be suitable.

^{5/} Shuey, William C. A Wheat Sizing Technique for Predicting Flour Milling Yield. Cereal Science Today 5: 71-72,75 (1960).

to give results more comparable to commercial milling. The break scalping sieves were clothed with #54 stainless steel wire, the reduction scalping sieves with #58, #66, and #105 stainless steel wires for the first, second, and third reduction, respectively. All of the flour sieves were clothed with #135 stainless steel wire.

All six flour streams were combined to give the patent flour. The extraction of a good milling wheat using this flow is approximately 68%. This is comparable to a commercial "long patent" extraction flour. At this flour extraction of the wheat, the changes in flour ash are most sensitive to changes in percent extraction.

Protein Content - The protein was calculated by multiplying the factor of 5.7 times the percent nitrogen as determined by the standard Kjeldahl procedure.

Mineral Content or Ash Content - This was determined by measuring the residue of the minerals left after incinerating the sample for approximately 16 hours at 565° C. The results were reported as percentage of the sample which was incinerated.

Mixogram - The mixogram was determined by using 30 g. of flour and adding 20 cc. of water. The sensitivity spring setting was set at 10. All mixograms were run with constant weight of flour and volume of water. Absorptions reported were adjusted according to the height of the mixogram. The correction factor was determined from a series of flours by varying the amount of absorption.

Mixogram Pattern - The reference mixogram patterns given at the end of the report demonstrate the different types of mixograms which were obtained. A single number is assigned each pattern to characterize and simplify the classification of the curves - the larger number indicating stronger curve characteristics.

Baking Procedure or Formula - The baking formula used was as follows:

100% flour	3% milk D.S.M.
2% salt	3% yeast
5% sugar	2% shortening (Crisco, melted)

The sample was mixed to development in a National Manufacturing mixer, for the 25 g. sample the Micro mixer, for the 100 g. sample the 100 g. special mixer size. Also, 10 p.p.m. of bromate and 0.1% Barley Malt Flour was used for oxidation and enzymatic supplements, respectively.

Absorption - This was the water, expressed as percent of the flour, required to bring the dough to proper consistency.

Crumb Color - This value was determined by comparing the loaf of the tested sample against a baking standard. This standard was selected as an average for the crop year for the spring wheat area.

Loaf Volume - This was volume of the baked loaf as determined by seed displacement.

All values (Protein, Ash, and Absorption) were reported on a 14% moisture basis.

DISCUSSION

The following discussion presents some of the basis for the techniques and criteria used in evaluating the samples. There are four major evaluation categories used: Kernel characteristics, to characterize the kernel; milling performance, to evaluate the general milling characteristics; mixogram patterns, to classify the flour as to type; and baking evaluation, to rate the flour as to overall baking.

Each evaluation category can be important. A sample could be of a sufficiently poor quality for a given category to eliminate it from possible future testing. However, a sample submitted for the first time and found to be questionable should be tested again to establish if it has a satisfactory or unsatisfactory classification. A sample which is consistently rated as questionable should be discarded.

All samples, as in previous years, are compared to a milling and baking standard which represents a blend of the crop year blended to a known quality. However, the samples for the individual stations were evaluated against the average results of the varieties Chris, Justin, and Selkirk from the respective stations. The agronomic and climatic conditions of the individual locations can effect the quality of the wheat sample, such that, the evaluation at certain locations could have all samples -- even the named varieties -- classified as questionable to unsatisfactory. Therefore, the evaluation ratings of one station are not directly comparable to those of another station. For example, an area may produce low protein wheats which give large and plump kernels, good milling and kernel characteristics, but low protein, and unsatisfactory baking properties such as short mixing time, low loaf volume, and weak dough characteristics. The wheat from this area could not be considered as a strong spring wheat, and would not maintain the quality expected from the spring wheat producing area. A good variety should have tolerance to a wide range of environmental conditions and the overall picture taken into consideration for establishing these varieties.

A sample rated as satisfactory to questionable has only a very minor fault; however, if it is questionable to satisfactory, the fault is more serious, but in either case the fault is not sufficient to be considered as detrimental. For questionable to unsatisfactory, and unsatisfactory to questionable, the faults are much more serious and the sample would have little future promise of being accepted if such faults are consistent.

When more than one of the factors are below the standard, the variety is marked as questionable or unsatisfactory. If sufficient data accumulated over a two- or three-year period show a definite deficiency, the variety should be discarded. If a major fault is found, the variety is undesirable and should be discarded.

Kernel Characteristics are important in determining the initial value of the wheat and, if extremely poor, could disqualify a new variety from further consideration. Because of the present grading system, it is

desirable to have a good test weight. If a sample has a low 1000 kernel weight and small kernel size distribution, it would be considered a poor sample for milling because of the high ratio of bran to endosperm. Therefore, it is desirous to have plump kernels. Wheat ash is an important factor when comparing a variety against other standard varieties. If a sample would have consistently higher wheat mineral content, it would enhance the probability of having high flour ash. Low protein would not be desirous when comparing with standard varieties, because in a low protein crop year the probability of it having such a low protein as to be undesirable is very probable. Therefore, the protein must also be considered as a characteristic when comparing other varieties grown in the same locality.

Milling Performance is very important, especially the sub-category of milling characteristics. If low extractions or high flour ash are obtained, this becomes a major factor and is quite unacceptable from a commercial milling standpoint. All flour mineral contents are reported at a constant extraction of 65% so that the figures are directly comparable. As a rule of thumb, one can approximate that each point of ash (0.01%) is equivalent to approximately 2% in extraction.

Milling characteristics are important. A sample which tends to be soft in character requires a different milling technique to be milled properly. On commercial mills flowed for hard vitreous spring wheats, soft milling characteristics cause great difficulty. Therefore, if a sample shows softness in character, it is considered to be unsatisfactory. Likewise, a sample which is extremely hard and vitreous will cause difficulty. Both types of wheat (soft or vitreous) require different roll pressures, clothing, sifter surface, and temper to be milled properly. If these wheats are blended with normal milling wheats, improper results are obtained since these characteristics are not necessarily compatible or additive. Normal to soft score indicates that the sample shows a tendency toward softness of character on the flour mill stocks and extraction. This would indicate that the sample may give some difficulty for certain mill streams and an adjustment would either have to be made in the milling flow, or in tempering procedures to compensate for these differences. The properties of this wheat may or may not be compatible with other wheats with which it may be blended, therefore, it is important to maintain varieties with as uniform milling characteristics as possible.

The amount of protein recovered in the flour for a sample is of importance. The high protein wheats yielding low protein flours are not desirable. Such a wheat would have much of the protein distributed in the outer portion of the kernel which would result in excessive protein in the feed. Therefore, higher protein in the wheat would be necessary to yield a flour of comparable protein to a wheat which gives good flour protein recovery.

Mixogram Patterns and Farinogram Patterns are important in estimating the strength and mixing tolerance or potential mixing tolerance of a flour. A long flat curve is more desirable than a short peaked curve; however, an extremely

long curve may be undesirable, since the flour would require excessive mixing to develop. The pattern of the curve is of importance as well as the length, and both must be considered.

Baking Evaluation takes into account the flour absorption, mixing time, dough characteristics, loaf volume, and machinability. A sample which has low absorption would be unsatisfactory, compared to other spring wheats with normal absorption. A sample with extremely short mixing time would also be considered undesirable as a good strong spring wheat. When a sample is in the minimal range for these values, it is considered as questionable until further testing demonstrates whether a definite deficiency exists.

Doughs having mellow to weak dough properties show a tendency towards weakness. Also, for mellow to strong, the dough is mellow, but has a tendency to be strong, and a strong to mellow dough is just the reverse. Since these characteristics are subjective rather than objective, it is necessary at times to estimate the tendency; therefore, the necessity exists for apparent double grades.

The grain or appearance of the interior of the loaf shows how well the sample stood up during baking and may point out or explain some deficiencies which have been observed during the baking test.

Loaf volume indicates potential strength of the flour in a different manner than mixing time or dough characteristics, in that it shows the ability or lack thereof for the dough to expand under pressure and to contain the entrapped gases during this expansion. Weak flours act much like rotten balloons which burst when blown up and collapse, thus yielding low loaf volume or extremely large volume and large holes in the interior of the loaf. Low protein flours and lifeless (dead) doughs exhibit the properties similar to putty and do not expand during fermentation or baking and give low loaf volume. Tough and very bucky doughs are bound too tight and impede expansion of the gases causing low loaf volume.

General Evaluation rating is given for varieties which have been tested at least for two crop years. This evaluation takes into account the various grading factors and the results of the crop years as an overall rating. The main defects and outstanding features are discussed. A variety which shows some promise with outstanding agronomic characteristics should be seriously considered and looked at in large plots, if it has not been previously, providing other sufficient information has been obtained. A sample which shows little promise should be discontinued.

ADVANCED YIELD NURSERY SAMPLES - 1967 CROP

Nine named wheat varieties were received from two Colorado stations - Center and Fort Collins. These samples were blended prior to receiving them from Fort Collins.

The data for the individual samples are given in Table 1. Of the varieties tested, Chris and Crim appear to be the best adapted for this area.

FIELD PLOT NURSERY SAMPLES - 1967 CROP

Forty-three field plot nursery samples were received from two states and three stations. The data for the individual samples are given in Tables 2 through 4. In Table 5, are given the averages for the varieties by states for the following varieties: Chris, Crim, Justin, and Selkirk for North Dakota, and Chris and Selkirk for Wisconsin. The averages for these commercial varieties per location were used as standard for judging the other samples in the field plots. The 1966 and 1967 averages also are given for these varieties for each of the states for comparative purposes.

NORTH DAKOTA SAMPLES

Thirty-five samples were received from the Dickinson and Williston, North Dakota stations. Twenty-four of these samples were named varieties of Canthatch, Chinook, Chris, Crim, Fortuna, Justin, Manitou, Pembina, Plainsman, Selkirk, Sheridan, Thatcher, and Valley. Eight of the samples were the unnamed selections: II-55-11, M3-1, M4-1, M4-7, M4-9, 61-107, ND 363-1, and Wisc. 255. The results for each variety and selection are given in Tables 2 and 3. The average results of the 1967 data for North Dakota were used to judge the performance of the other samples submitted. These data are given in Table 5.

II-55-11 (C.I. 13773)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. Based on two years of data, this selection shows good promise.

M3-1

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. The color and loaf volume are slightly down.

M4-1

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Loaf volume slightly down.

M4-7

Kernel Characteristics - Satisfactory.

Milling Performance - Very Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Loaf volume slightly down.

M4-9

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

61-107 (C.I. 13937)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Minimum absorption for the Dickinson sample.

General Evaluation - Questionable. This selection continues to show low or minimum absorption, therefore would have little promise.

ND 363-1 (C.I. 13828)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. Based on two crop years of field plot data, this sample shows some promise. The Williston sample showed minimum flour extraction and the Dickinson sample minimum loaf volume.

Wisc. 255 (C.I. 13588)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. Flour ash was maximum.

Wisc. 255 (C.I. 13588) Cont'd.

Baking Evaluation - Satisfactory to Questionable. Minimum mixing time and crumb color.

General Evaluation - Questionable to Satisfactory. Based on two crop years, this selection shows some promise.

WISCONSIN SAMPLES

Eight samples were received from the Madison, Wisconsin station. Five of the samples were unnamed selections: II-55-11, Wisc. 255, Wisc. 261, Wisc. 270, and Wisc. 271. Three of the samples were the named varieties: Chris, Lathrop, and Selkirk. The results are given in Table 4. The average results of Chris and Selkirk for the station were used to judge the performance of the samples. These results are given in Table 5, as the 1967 crop average.

II-55-11 (C.I. 13773)

Kernel Characteristics - Very Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

Wisc. 255 (C.I. 13588)

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. High flour mineral content and tendency to soft milling characteristics.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. Based on previous performance, the milling results this crop year are unusual. The high wheat mineral content is reflected in the flour mineral content. This selection does show some promise.

Wisc. 261

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Satisfactory. Poor interior.

Wisc. 270

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

Wisc. 271

Kernel Characteristics - Satisfactory.

Milling Performance - Very Satisfactory.

Baking Evaluation - Satisfactory.

UNIFORM REGIONAL NURSERY SAMPLES - 1967 CROP

A total of 324 Uniform Regional Nursery samples were received. The samples represented 18 stations from 6 states. No blends were made of the samples for this crop year due to lack of compatibility and were milled as individual samples to eliminate any possible erroneous results. Thus, a total of 324 samples were milled and baked. Eighteen samples were received from each of the stations. Twelve selections were included for quality evaluation in the Uniform Regional Nursery samples. The remainder of the samples were the commercially, named varieties of Chris, Justin, Manitou, Marquis, Selkirk, and Thatcher.

Seventy-two samples were received from the 4 Minnesota stations of Crookston, Morris, St. Paul, and Waseca. Data for these samples are given in Tables 6 through 9. Yellow berries and some blackpoint were noted in the Morris, St. Paul, and Waseca samples, as well as ergot in the St. Paul and Waseca samples.

Fifty-four samples were received from 3 stations in Montana: Bozeman, Havre, and Sidney. Data for these samples are given in Tables 10 through 12.

One hundred and eight samples were received from 6 stations in North Dakota: Carrington, Dickinson, Fargo, Langdon, Minot, and Williston. The data for these samples are given in Tables 13 through 18.

Thirty-six samples were received from 2 stations in South Dakota: Highmore and Watertown. The data for these samples are given in Tables 19 and 20.

Eighteen samples were received from the Madison, Wisconsin station. The data are given in Table 21. Yellow berries and blackpoint were noted in these samples.

Thirty-six samples were received from 2 Wyoming stations: Laramie and Sheridan. The data for these samples are given in Tables 22 and 23. Some of the Laramie, Wyoming samples contained smut. The very deleterious effect upon the flour color will be noted from the data in Table 22 for the II-55-11 sample.

In Table 24 are given the average results for each of the 18 samples submitted from the 6 states and 18 stations. The results for the kernel characteristics, milling performance, and mixogram patterns were obtained by averaging the results from the 18 tables--6 through 23. However, the baking results were obtained from a blend of the flours in equal proportions from each of the stations for the respective variety or selection. The regular 100 gram straight dough rich formula baking procedure was used in baking the flour blends. Again, as last year, the column, General Evaluation, was included which takes into consideration the general overall performance of the samples. This will afford a ready reference.

For simplicity and brevity of the report, as in previous reports, each variety will be discussed from the general overall average of the results given in Table 24, rather than the individual stations. The general evaluation summarizes the results from the individual stations or from two or more crop years, as well as the tolerance test. The evaluation is more meaningful for the overall performance of the variety when at least two or more crop years are included.

In Table 25, the averages are given by state for the 3 varieties of Chris, Justin, and Selkirk. This table gives a comparison of the varieties by state, as well as state averages of the 3 varieties for comparative purposes, and the 1967 grand averages. The 1966 grand averages for the same 3 varieties are also given for comparison of the two crop years. In general, the 1967 crop had better kernel characteristics, 1.5% less protein which was also reflected in lower baking absorption, and somewhat poorer milling results with 2.5% less extractions, but 3 points lower mineral content compared to the 1966 crop. The mixing time was longer; the mixogram patterns equal, although the dough character was stronger; the crumb grain slightly poorer, and the loaf volume lower than the 1966 crop.

The average results of the varieties Chris, Justin, and Selkirk for each of the individual stations were used as a standard for the other selections from that station. Therefore, a variety or a selection may be rated Satisfactory at two different stations; however, comparison of the data may show much poorer results for one station due to adverse agronomic conditions. Thus, in actuality, the sample with poorer results could be rated as Unsatisfactory quality wise when compared to the overall spring wheat area. The state averages in Table 25 are additional guides for the relative performance for the crop year by states.

The average results for the new varieties or selections were:

RL 4200

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. This selection shows a tendency to give minimum extraction.

Baking Evaluation - Questionable to Unsatisfactory. This selection shows a tendency toward minimum absorption, short mixing time, and a tendency to give weak doughs.

General Evaluation - Unsatisfactory. Based on this crop year's results, this selection would show no promise as a new variety because of its minimum milling properties and poor baking results.

II-55-11 (C.I. 13773)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. Based on 5 crop years, this variety has had a tendency to give erratic minimal results from different areas, for both milling and baking; however, this selection does show good promise as a new variety.

II-55-16

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. This selection showed minimum extraction and, for some stations, showed a tendency to be soft in milling characteristic.

Baking Evaluation - Satisfactory to Questionable. The baking results were somewhat erratic.

General Evaluation - Questionable. Based on 2 crop years, this selection shows little promise as a new variety due to the minimum milling performance and erratic baking results.

II-56-40

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. This sample showed low absorption and long mixing time, which may be too long.

General Evaluation - Satisfactory to Questionable. Based on 2 crop years, this selection shows some promise as a new variety. However, it does show minimum baking absorption and long mixing time which could be a problem. The milling performance was not as outstanding as last year which was rated as very satisfactory.

II-59-91

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Unsatisfactory. Low extraction and high flour ash.

Baking Evaluation - Satisfactory.

II-59-91 Cont'd.

General Evaluation - Unsatisfactory to Questionable. Based on 2 crop years, this selection would show no promise as a new variety due to its milling characteristics which show a tendency to give low extraction and high flour ash.

61-107 (C.I. 13937)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. This selection shows a tendency to give minimum extraction and has soft milling characteristics.

Baking Evaluation - Questionable to Satisfactory. Minimum mixing time, absorption, and dough characteristics.

General Evaluation - Unsatisfactory to Questionable. Based on 3 crop years, this selection would show no promise as a new variety, primarily due to weak dough characteristics and questionable milling performance.

ND 363-1 (C.I. 13828)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. This selection shows a tendency to give poor grain and interior loaf structure.

General Evaluation - Satisfactory to Questionable. This selection, based on 4 crop years, would show some promise as a new variety, although it has given minimum milling performance and somewhat erratic baking results.

ND 478

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. Although this selection has shown a tendency to have soft milling characteristics, it has not been exhibited in the flour extraction.

Baking Evaluation - Satisfactory.

General Evaluation - Based on this crop year, this selection would show some promise as a new variety; however, the milling characteristics would have to be evaluated more closely.

ND 479

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. This selection shows minimum extraction and a tendency to give soft milling characteristics.

Baking Evaluation - Unsatisfactory to Questionable. The mixing time is short and the dough character is weak for this selection. Also, this selection required 20 p.p.m. of bromate compared to 10 p.p.m. for the other samples.

General Evaluation - Unsatisfactory. Based on this crop year's results this selection would show no promise as a new variety due to the poor milling performance and baking evaluation, as well as the unusual response to oxidation.

Wisc. 261

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Satisfactory. Low absorption, questionable long mixing requirements, and somewhat poor interior of the loaf.

General Evaluation - Questionable. Based on 2 crop years, this selection would show little promise as a new variety due to the minimum absorption and questionable length of mixing time.

Wisc. 270

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. This selection shows minimum extraction and a tendency to have soft milling characteristics.

Baking Evaluation - Questionable to Satisfactory. Mixing time appears to be abnormally long.

General Evaluation - Questionable. This selection would show little promise as a new variety due to the milling characteristics and the abnormally long mixing time which was shown for the individual samples. However, the blend did not show this as readily but on extended mixing the sample did not stand up as well.

Wisc. 271

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. Sample did show a tendency to exhibit, for some stations, soft milling characteristics.

Baking Evaluation - Satisfactory to Questionable. This sample showed minimum absorption but did not show as long a mixing requirement as the other Wisconsin samples.

General Evaluation - Questionable to Satisfactory. Based on this year's results, this selection would show some promise as a new variety; although it did give minimum baking absorption and did have a tendency, at some locations, to show soft milling characteristics.

SAWFLY YIELD NURSERY SAMPLES - 1967 CROP

One hundred and fifteen samples were received from 3 stations in Montana and 2 stations in North Dakota. Twenty-three samples were received from the stations in Dutton, Havre, and Sidney, Montana and Fargo and Williston, North Dakota. Six of the samples from each station were the following named varieties: Chinook, Cypress, Fortuna, Rescue, Sawtana, and Thatcher. Seventeen of the samples from each station were the following selections: QLS-201, QSF-254-3A, Q72-5135, 7169-293, 7530-433, 7530-445, 7169-88, 7532-2, 7530-436, MT 6669, MT 6671, MT 6679, S6529, S6555, S6579, S6589, and 61-107. The data for these samples for the individual stations are given in Tables 26 through 30. In Table 30, are given the average of the five stations for each of the varieties with an additional "General Evaluation" column. This year, for each station, the varieties of Chinook, Fortuna, Rescue, and Thatcher were averaged for a standard performance and the results of the individual samples were compared to this average.

QLS-201

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Low extraction and high ash.

Baking Evaluation - Satisfactory to Questionable. Extremely long mixing time.

General Evaluation - Questionable. Based on this crop year, this selection would show little promise as a new variety due to the low extraction, tendency towards high ash, and extremely long mixing time.

QSF-254-3A

Kernel Characteristics - Satisfactory to Questionable. Minimum kernel size distribution.

Milling Performance - Questionable to Satisfactory. Minimum flour extraction with a tendency to show soft milling characteristics for some samples.

Baking Evaluation - Satisfactory to Questionable. Minimum absorption, mixing time, color, and poor grain.

General Evaluation - Questionable. This selection, based on the results for this crop year, would show little promise as a new variety due to minimum performance and characteristics in all three categories.

Q72-5135

Kernel Characteristics - Satisfactory to Questionable. Low test weight.

Milling Performance - Satisfactory to Questionable. High flour ash.

Baking Evaluation - Satisfactory to Questionable. Poor crumb color.

General Evaluation - Questionable. This selection would show little promise as a new variety due to low test weight, high flour ash, and poor crumb color.

7169-293

Kernel Characteristics - Satisfactory to Questionable. Minimum kernel weight and kernel size distribution.

Milling Performance - Questionable. Low extraction and tendency for soft milling characteristics.

Baking Evaluation - Satisfactory to Questionable. The crumb grain of this selection is minimal.

General Evaluation - Questionable. Based on this crop year's results, this selection would show little promise as a new variety due primarily to the milling characteristics. However, it was down slightly in kernel characteristics and baking evaluation.

7530-433

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Somewhat erratic results in the crumb grain.

General Evaluation - Satisfactory to Questionable. This selection shows some promise as a new variety, however, the crumb grain is down slightly from that normally associated with spring wheats.

7530-445

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Minimum mixing time and baking absorption.

General Evaluation - Satisfactory to Questionable. This selection does show some promise as a new variety, although it exhibits minimum mixing time and minimum baking absorption.

7169-88

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. The flour extraction down slightly with a tendency to show soft milling characteristics.

Baking Evaluation - Satisfactory to Questionable. This selection has a tendency to show erratic baking results.

General Evaluation - Satisfactory to Questionable. Based on one year's results, this selection does show some promise as a new variety, although it does give erratic baking results.

7532-2

Kernel Characteristics - Satisfactory to Questionable. Minimum kernel weight and kernel size distribution.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Short mixing time and poor crumb interior of the loaf.

General Evaluation - Questionable. This selection shows little promise as a new variety based on 2 crop years. Last year it was rated as questionable to satisfactory due to erratic and minimum milling performance. This year the short mixing time and poor crumb interior of the loaf would be the major faults.

7530-436

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. Maximum flour ash.

Baking Evaluation - Satisfactory to Questionable. Minimum mixing time and low loaf volume.

General Evaluation - Questionable. Based on two crop years, this selection would show little promise as a new variety as it has consistently shown minimum milling results and, this year, minimum mixing time and loaf volume.

MT 6669

Kernel Characteristics - Satisfactory to Questionable. Minimum 1000 kernel weight.

Milling Performance - Questionable to Satisfactory. The extraction is minimum with a tendency to show soft milling characteristics and a 1.2% spread in protein between the flour and wheat.

Baking Evaluation - Questionable to Satisfactory. Low absorption and loaf volume.

General Evaluation - Questionable to Unsatisfactory. This sample would show little promise as a new variety due to deficiencies in each of the three categories.

MT 6671

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory. Although it does show a 1.2% spread between flour and wheat protein.

Baking Evaluation - Questionable to Satisfactory. This sample shows minimum absorption and loaf volume.

General Evaluation - Questionable. Based on this year's results, this sample would show little promise as a new variety due to the minimum baking performance.

MT 6679

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Lowest extraction of all the samples in the series and a tendency to show soft milling characteristics.

Baking Evaluation - Satisfactory to Questionable. Minimum absorption and loaf volume.

General Evaluation - Unsatisfactory to Questionable. Based on one year's results, this sample would show no promise as a new variety due to deficiencies in milling characteristics and minimum baking performance.

S6529

Kernel Characteristics - Satisfactory to Questionable. Low test weight.

Milling Performance - Satisfactory.

S6529 Cont'd.

Baking Evaluation - Satisfactory to Questionable. Results slightly erratic.

General Evaluation - Questionable to Satisfactory. This selection would show some promise as a new variety, although it does have low test weight and somewhat erratic baking results.

S6555

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. Extraction minimum and a tendency to show soft milling characteristics.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. Based on one crop year, this sample would show some promise as a new variety; however, the minimum milling performance may be sufficient on future evaluations to reject the sample.

S6579

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Somewhat erratic crumb grain structure.

General Evaluation - Satisfactory to Questionable. This selection shows some promise as a new variety. It has good 1000 kernel weight and kernel size distribution, as well as low flour ash.

S6589

Kernel Characteristics - Satisfactory to Very Satisfactory.

Milling Performance - Questionable to Satisfactory. Low extraction, tendency for high ash, and possible soft milling characteristics.

Baking Evaluation - Satisfactory to Questionable. Somewhat erratic results.

General Evaluation - Questionable. This selection would show little promise as a new variety because of the poor milling performance in accordance with the good kernel characteristics.

61-107 (C.I. 13937)

Kernel Characteristics - Very Satisfactory to Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Baking results somewhat erratic.

General Evaluation - Questionable. Based on 4 crop years, the baking performance of this selection has been minimum. Due to somewhat erratic results of the milling performance and the baking performance, this selection would show little promise as a new variety. Although, this year the general evaluation would be some promise.

TABLE 1

QUALITY DATA ON ADVANCED YIELD NURSERY SAMPLES

Center and Fort Collins, Colorado

1967 CROP

C.I. No.	Variety or Sel. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht.		Kern. Pro.	Wht. Char.	Flr.		Min. @ 65% Ex.	Flr. Pro.		Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				Lg.	Med.		Sm.	2/ %			3/ %	2/ %		2/ %	2/ %											
13751	Chris	63.0	33.2	64	33	3	76.1	1.69	13.8	S	61.2	.40	13.7	N	S	66.0	3	66.0	2-1/2	S-M	95 SLC	80 IO	925	S		
13465	Grim	61.5	36.9	74	24	2	76.6	1.70	14.3	S	62.5	.41	14.1	N	S	68.5	5	68.5	3	S	105 SLC	80 IO	930	S		
13596	Fortuna	62.4	42.4	70	26	4	76.3	1.72	13.0	S	67.0	.44	12.9	N	Q	64.7	3	64.7	2-3/4	S-M	90 DG	70 IO	890	Q		
12488	Lee	61.3	35.7	68	31	1	76.4	1.90	14.2	Q	56.8	.62	13.9	N	Q	65.0	3	65.0	3	S-M	100 SLC	70 IO	935	Q		
13775	Manitou	62.0	33.0	60	38	2	75.9	1.68	14.7	S	60.6	.44	14.6	N	Q	65.0	3	65.0	2-1/4	S	80 SLC	90	980	Q-S		
3641	Marquis	61.9	36.0	64	34	2	76.1	1.70	12.4	S	59.8	.46	12.2	N	Q-U	63.2	2	63.2	2-3/4	S	100 C	90	840	Q		
13931	Nadadores	60.4	43.1	69	28	3	76.3	1.52	10.5	S	61.0	.40	10.1	N	S	61.0	2	61.0	2-3/4	M-W	100 C	95 H	735	U		
13586	Sheridan	62.9	37.2	74	24	2	76.6	1.78	13.3	S	61.1	.45	12.8	N	Q-U	64.2	2	64.2	2-1/4	M-S	110	90	940	S-Q		
10003	Thatcher	62.3	33.1	59	39	2	75.9	1.70	13.8	S	58.8	.45	13.4	N	U-Q	63.5	3	63.5	2-1/2	S-M	55 SLC	70 IO	930	Q		

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.

TABLE 2

QUALITY DATA ON FIELD PLOT NURSERY SAMPLES

Dickinson, North Dakota

1967 CRO?

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Nin.	Wht. Pro.	Kern. Char.	Flr. Ext.	Min. @ 65% Ex.		Flg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				%	%	%	2/	2/	3/	7	%	%	2/	3/	2/	5/	2/	min.	2/	1/	g/	cc.	3/
Canthatch	13345	56.1	27.0	33	64	3	74.5	1.79	15.1	57.4	.52	13.9	N	U	59.0	1	58.0	3	N-N	38 DC	90 0	975	U
Chris	13751	59.6	29.0	26	72	2	74.2	1.91	14.6	62.0	.42	14.0	N	S	62.3	2	62.3	3-1/4	S	90 SLC	90 0	890	Q-S
Crim	13465	59.9	27.9	27	71	2	74.3	1.80	14.6	61.2	.41	13.9	N	S	65.3	4	65.3	4	VS	90 SLC	90 0	980	Q-S
Fortuna	13596	59.9	32.1	15	83	2	73.7	1.81	13.2	63.0	.41	12.7	N	S	61.0	3	61.0	3	S	105 C	90 0	935	S-Q
Justin	13462	58.6	23.8	3	93	4	73.0	1.72	15.3	62.1	.39	14.4	N	S	63.8	4	63.8	3-1/2	S	100 C	80 0	940	S-Q
Manitou	13775	59.9	24.4	4	92	4	73.0	1.82	13.9	63.8	.40	13.2	N	S	61.6	3	61.6	3-1/4	S	95 C	80 0I	905	Q
Pembina	13332	58.2	23.5	2	93	5	72.9	1.83	14.6	64.7	.42	14.1	N	S	63.8	5	63.8	4-3/4	VS	90 SLC	80 I	980	S
Selkirk	13100	56.1	22.9	2	92	6	72.8	1.82	14.3	65.9	.40	13.3	N	S	62.5	5	62.5	4-1/2	VS	100 W	90 I	1050	S
Sheridan	13586	60.9	28.3	9	88	3	73.3	1.68	14.5	65.1	.35	13.8	N	VS	62.5	4	62.5	4	S	100 W	95	955	S
Thatcher	10003	59.4	24.9	5	92	3	73.1	1.82	15.3	65.6	.40	14.3	N	S	63.5	3	63.5	2-1/4	VS	90 SLC	90 0	935	Q
Valley		60.3	29.0	28	70	2	74.3	1.80	15.5	61.3	.41	14.3	N	S	64.7	3	64.7	2-1/4	M	95 C	80 0	830	U
II-55-11	13773	60.3	28.7	22	74	4	73.9	1.74	14.8	66.8	.38	14.4	N	S	64.7	4	64.7	3-1/2	VS	100	90	1050	S
61-107	13937	60.1	31.2	31	60	9	74.1	1.74	14.7	64.9	.41	14.5	N	S	62.3	2	62.3	2-1/2	S	95 SLC	80 0I	860	Q
ND 363-1	13828	59.3	28.7	36	62	2	74.7	1.85	15.5	64.5	.43	14.7	N	S	63.2	4	63.2	3-1/4	S	100 SLC	90 10	905	S
Wisc. 255	13588	59.8	29.0	10	88	2	73.4	1.81	15.6	66.4	.45	14.9	N	S-Q	63.2	3	63.2	2-3/4	VS	90 C	95	990	S-Q

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

TABLE 3

QUALITY DATA ON FIELD PLOT NURSERY SAMPLES

Killistno, North Dakota

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht.		Kern. Char.	Flr. Ext.	Min. @ 65% Ex.		Flg. Mlg.	Mlx. Abs.	Mlx. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval
				Lg.	Med.	Sm.	2/ %	3/ %		2/ %	3/ %	4/ %								
Canthatch	13345	59.8	23.6	2	91	7	1.51	15.5	S	66.6	.31	14.7	N	S	63.8	4	100 S1C	80 0	1035	S
Chinook	13220	61.1	27.3	4	92	4	1.51	16.6	S	66.6	.31	15.6	N	S	65.7	4	95 S1C	90 0	965	S
Chris	13751	61.0	24.0	2	94	4	1.49	16.1	S	66.3	.34	15.2	N	S	63.5	5	90	95 S10	980	S-Q
Crim	13465	60.0	27.9	23	72	5	1.43	15.5	S	64.5	.36	14.6	N	Q	66.0	5	100	95	980	S
Fortuna	13596	61.5	33.9	27	71	2	1.43	15.1	VS	68.6	.34	14.5	N	S	64.7	4	90	95 S10	980	S-Q
Justin	13462	59.6	26.1	5	90	5	1.53	16.0	S	67.2	.34	15.4	N	S	65.7	5	105 S1C	90 0	980	S
Manitou	13775	59.5	23.1	1	92	7	1.53	16.1	S	66.5	.33	15.4	N	S	62.8	4	115 BC	80 10	960	S-Q
Pembina	13332	58.7	25.1	2	92	6	1.44	15.7	S	66.2	.34	14.2	N	S	63.8	7	90	90 0	1100	S-Q
Plainsman	14128	56.1	27.0	3	90	7	1.50	15.4	S-Q	67.7	.36	14.8	N	Q-S	65.3	5	100 S1C	80 10	1020	S-Q
Selkirk	13100	58.3	27.0	4	90	6	1.45	14.6	S	68.2	.34	14.2	N	S	63.2	4	110	80 10	995	S-Q
Sheridan	13586	60.9	26.6	4	90	6	1.44	15.1	S	64.6	.35	14.6	N	Q	62.8	6	105	80 10	1000	Q-S
Thatcher	10003	60.1	23.1	2	91	7	1.49	15.6	S	66.2	.37	14.8	N	Q-S	62.5	5	105 S1C	80 0	1030	Q-S
Valley	59.6	29.7	25	71	4	74.1	1.33	15.0	VS	63.2	.36	14.9	N-S	Q	62.8	3	105	90 0	1040	Q
II-55-11	13773	61.7	31.7	20	77	3	1.45	15.2	S	66.8	.33	14.4	N	S	63.2	5	100	95 S10	1020	S
M3-1	61.2	25.8	1	94	5	72.8	1.51	16.9	S	68.5	.35	15.6	N	S	64.7	5	90	90	930	S-Q
M4-1	60.1	27.0	5	92	3	73.1	1.51	17.1	S	67.0	.32	15.4	N	S	67.6	6	100 S1C	90 0	915	S-Q
M4-7	60.7	30.0	10	87	3	73.4	1.51	16.5	S	68.5	.29	15.7	N	VS	67.0	6	105 S1C	95 S10	930	S-Q
M4-9	59.9	26.7	6	90	4	73.1	1.54	17.0	S	67.4	.32	15.6	N	S	66.6	5	95 C	95 S11	945	S
61-107	13937	59.8	32.4	19	76	5	1.39	16.6	S	66.2	.31	15.4	N	S	64.2	4	100 S1C	95 S110	1040	S
ND 363-1	13828	59.3	27.0	9	87	4	1.47	16.3	S	65.7	.34	15.8	N	S	65.7	7	110 S1C	90 01	1030	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, N - Mellow, W - Weak, D - Dull, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

TABLE 4

QUALITY DATA ON FIELD PLOT NURSERY SAMPLES

Madison, Wisconsin

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min.		Wht. Pro.	Mnt. Pro.	Kern. Char.	Flr. Ent.	Flr. 65°F.	Min. @ 2/ %	Flr. Pro.	Mlg. Char.	Mlg. Per.	Min. Abs.	Mix. Pat.	Bake Abs.	Time 2/ %	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.		
				Lg.	Sm.		2/ %	3/ %																			2/ %	3/ %
Chris	13751	62.3	30.3	46	53	1	75.3	1.78	14.2	S	63.6	.42	13.9	N	S	S	63.2	3	3	63.2	2-3/4	S	105	SIC	95	SIO	960	S
Lathrop	13457	58.8	31.0	33	65	2	74.9	1.94	12.0	S-Q	67.6	.36	11.2	N	VS	VS	58.1	2	2	58.1	2-1/2	M-S	100	C	100	875	Q	
Selkirk	13100	59.0	33.9	50	48	2	75.4	1.87	12.9	S	67.3	.42	12.4	N	S	S	60.3	2	2	60.3	2-3/4	M	110	SIC	100	900	S	
II-55-11	13773	62.9	37.2	68	31	1	76.4	1.89	14.6	VS	64.1	.42	14.0	N	S	S	63.2	4	4	63.2	3-1/4	S	110	S	95	SII	1025	S
Wisc. 255	13588	61.0	35.8	64	35	1	76.2	2.07	14.8	S	63.5	.52	14.1	N-S	U	U	63.8	3	3	63.8	2-3/4	S	95	SIC	95	SIO	1000	S
Wisc. 261		59.9	35.5	62	36	2	76.0	1.86	12.3	S	66.1	.39	11.6	N	S	S	61.9	4	4	61.9	4	M-S	95	SIC	80	OI	890	Q-S
Wisc. 270		60.0	34.4	66	32	2	76.2	1.87	12.7	S	66.0	.36	12.2	N	S	VS	62.8	3	3	62.8	3-1/2	M-S	95	SIC	95	SIO	930	S
Wisc. 271		60.6	33.7	49	49	2	75.4	1.78	12.3	S	66.6	.36	11.6	N	VS	VS	61.3	4	4	61.3	3-1/2	M-S	95	SIC	95		925	S
1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.																												
2/ 14% moisture basis.																												
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.																												
4/ N - Normal, H - Hard, S - Soft.																												
5/ Refer to Reference Mixograms for numerical curve pattern.																												
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.																												
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.																												
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S - Slightly, C - Close, H - Harsh.																												

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close, H - Harsh.

TABLE 5

QUALITY DATA ON FLEND PLOT STATE AVERAGES

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min. 2/ #	Wht. Pro. 2/ #	Kern. Char. 3/ #	Flr. Ext.	Flr. Min./Ex. 2/ #	Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Min. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.	
				Lg.	Med. Sm.																			2/ #
NORTH DAKOTA																								
Chris	13751	60.3	26.5	14	83	3	73.5	1.70	15.4	S	64.2	.38	14.6	N	S	62.9	4	12.9	3-1/2	S	90 SIC	93 SIC	35	S-Q
Chris	13465	60.0	27.9	25	72	3	74.1	1.63	15.1	S	62.7	.39	14.3	N	S-Q	65.7	5	15.7	4-1/2	VS	95 SIC	95 0	980	S-Q
Justin	13462	59.1	25.0	4	92	4	73.0	1.63	15.7	S	64.7	.37	14.9	N	S	64.8	5	15.8	4	S	103 SIC	85 0	960	S-Q
Selkirk	13100	57.2	25.0	3	91	6	72.9	1.64	14.5	S-Q	67.1	.37	13.8	N	S	62.9	5	62.9	4-1/4	S	105 W	85 IO	1023	S-Q
1967 Average ^{2/}		59.2	26.1	12	84	4	73.4	1.65	15.2		64.7	.38	14.4			64.1	5	64.1	4		98	90	975	
1966 Average ^{2/}		58.2	25.6	8	87	5	73.1	1.81	17.0		65.1	.41	15.9			67.0	5	67.0	3-1/2		108	93	1016	
WISCONSIN																								
Chris	13751	62.3	30.3	46	53	1	75.3	1.78	14.2	S	63.6	.42	13.9	N	S	63.2	3	63.2	2-3/4	S	105 SIC	95 S10	960	S
Selkirk	13100	59.0	33.9	50	48	2	75.4	1.87	12.6	S	67.3	.42	12.4	N	S	60.3	2	60.3	2-3/4	M	110 SIC	100	900	S
1967 Average ^{1/}		60.7	32.1	48	50	2	75.4	1.83	13.6		65.5	.42	13.2			61.8	3	61.8	2-3/4		108	98	930	
1966 Average ^{2/}		59.7	26.5	8	89	3	73.3	2.02	12.9		66.0	.45	12.2			60.2	4	60.2	4		103	95	885	
CROP YEAR AVERAGE																								
Crop Average 1967		60.0	29.1	30	67	3	74.4	1.74	14.4		65.1	.40	13.8			62.5	4	62.5	3-1/2		103	94	953	
Crop Average 1966		59.0	26.1	8	88	4	73.2	1.92	15.0		65.6	.43	14.1			63.6	5	63.6	3-3/4		106	94	951	

1/ Clean dry - subtract 1#/Bu. for dockage-free I.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.

9/ Averages are obtained using the results for the varieties of Chris, Crim, Justin and Selkirk.

10/ Averages are obtained using the results for the varieties of Chris and Selkirk.

TABLE 6

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Crookston, Minnesota

1967 CRO

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht.		Uht. Pro.	Kern. Char.	Flr. Ext.	Flr. Min. @ 65°F.		Mlg. Char.	Mlg. Per.	Mix. %		Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				Lg.	%	Lg.	%	%				2/	3/			2/	3/							
Chris	13751	64.5	32.4	46	53	1	75.3	1.44	13.2	S	57.3	.41	12.5	N	S	62.3	3	62.3	3	M-S	115 SIC	95	185	S-Q
Justin	13462	63.5	34.7	64	35	1	76.2	1.59	13.2	S	57.5	.41	12.7	N	S	63.8	5	63.8	4-1/2	N	115	95	173	S
Manitou	13775	64.0	32.1	50	49	1	75.5	1.53	13.1	S	57.6	.41	12.4	N	S	61.3	4	61.3	3-3/4	N	120 SIC	90	187	S-Q
Marquis	3641	64.5	30.2	44	52	4	75.0	1.38	10.8	S	55.1	.44	9.9	N	Q	59.7	2	59.7	4	M-S D	110 C	90	167	U
Selkirk	13100	63.0	36.2	57	42	1	75.8	1.51	13.0	S	59.9	.34	12.3	N	VS	62.8	4	62.8	4	N	110	95 C	172	S
Thatcher	10003	64.5	31.6	49	49	2	75.4	1.46	12.7	S	58.2	.38	12.0	N	S	61.6	2	61.6	3-1/4	N	115 SIC	95	172	S-Q
RL 4200	64.5	34.0	61	38	1	76.0	1.50	13.4	S	55.7	.38	11.9	N	Q	S	61.9	3	61.9	3	M-S	105	95	181	S
II-55-11	13773	66.5	43.1	77	21	2	76.8	1.56	13.7	S	57.2	.37	12.9	N	S	63.2	4	63.2	4	S	120	95 SII	212	S
II-55-16	67.0	41.3	77	21	2	76.8	1.47	12.6	S	57.9	.37	11.9	N	S	S	64.2	4	64.2	4	M-S	105	90	193	S
II-56-40	64.5	37.6	67	31	2	76.3	1.51	12.7	S	59.1	.35	12.2	N	VS	S	61.6	6	61.6	6-1/2	N	110	92 OI	189	Q-S
II-59-91	64.0	31.4	52	45	3	75.5	1.68	12.0	S	56.3	.46	11.1	N	Q-U	S	62.5	5	62.5	5-1/2	M-S	105 SIC	95 C	175	S
61-107	13937	64.5	42.6	78	21	1	76.9	1.43	12.4	VS	56.7	.43	12.1	N	S	62.5	3	62.5	3	M-S	105	100 C	165	S
ND 363-1	13828	63.5	37.6	78	21	1	76.9	1.50	13.5	S	58.2	.40	12.4	N	S	62.8	5	62.8	5	S-M	115 SIC	95 SII	183	S
ND 478	62.5	37.6	76	23	1	76.8	1.53	13.4	S	58.6	.34	12.6	N	S	S	64.4	4	64.4	4-1/2	S	115 SIC	90 I	200	S
ND 479	63.5	36.6	74	25	1	76.7	1.48	13.4	S	56.3	.38	12.5	N-S	Q-S	S	64.4	2	64.4	2-1/4	M-S	110	90 S10	184	Q
Wis. 261	63.5	31.2	43	52	5	74.9	1.58	12.1	S	59.0	.38	11.2	N	S	S	62.5	5	62.5	5	M-S	105 C	80 IO	195	S-Q
Wis. 270	62.0	31.9	32	65	3	74.5	1.58	13.5	S-Q	58.0	.40	12.8	N-S	S-Q	S	63.2	7	63.2	8-1/2	M-S	100	95 S10	202	Q
Wis. 271	65.0	37.6	55	43	2	75.7	1.40	12.0	S	60.1	.37	11.0	N	VS	S	61.0	4	61.0	4-3/4	N	105 SIC	95	184	S-Q

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

TABLE 7

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Morris, Minnesota

1967 CROP

Variety or Sel No.	C. I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Min. @		Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Min. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				Lg.	Med.	Sm.	2/ %	2/ %	3/ %	2/ %	2/ %	2/ %	2/ %	2/ %	2/ %	2/ %	2/ %	2/ %	2/ %	2/ %	2/ %	2/ %	2/ %	2/ %
Chris	13751	63.5	30.3	35	63	2	74.7	1.69	11.6	S	58.1	.47	10.8	N	S	58.7	3	58.7	4-1/4	M-W*	120 S1C	95 C	164	S
Justin	13462	62.0	34.0	51	46	3	75.4	1.72	11.8	S	60.4	.44	10.9	N	S	60.3	11	60.3	5-1/2	M	120 S1C	95 C	165	S
Manitou	13775	62.5	30.3	33	65	2	74.6	1.67	12.1	S	58.5	.49	10.8	N	S-Q	58.3	5	58.3	5	M-W*	120 S1C	95 C	162	S
Marquis	3641	59.5	23.6	3	89	3	72.8	1.84	9.5	Q-U	53.8	.56	8.8	S	U	54.3	5	54.3	5-1/2	W	120 C	95 C	147	U
Selkirk	13100	61.0	32.5	32	65	3	74.5	1.79	11.3	S	59.7	.47	10.5	N	S	58.7	4	58.7	5	M-W*	110	95 C	164	S
Thatcher	10003	61.0	25.3	3	93	4	73.0	1.69	11.5	Q	59.1	.53	10.8	N	Q	58.1	5	58.1	5	M-W*	120 S1C	90 C	169	S
RL 4200	63.5	33.6	51	47	2	75.5	1.68	11.6	S	57.2	.49	10.7	N	S-Q	S	59.3	4	59.3	4-3/4	M-W*	105 C	90	162	S
II-55-11	13773	64.0	37.7	59	37	4	75.8	1.77	12.3	VS	59.2	.46	11.3	N	S	61.9	6	61.9	6	M	120	90 C	190	S
II-55-16	64.0	38.6	69	28	3	76.3	1.66	11.2	VS	59.2	.46	10.2	N	S	S	60.3	4	60.3	4-1/2	M-W*	105 S1C	95 C	175	Q
II-56-40	63.0	36.5	52	46	2	75.5	1.76	11.0	S	60.1	.46	10.1	N	S	S	57.2	10	57.2	9	M-W*	105 S1C	90 C	177	Q
II-59-91	63.0	32.1	47	52	1	75.3	1.69	11.4	S	59.7	.43	10.4	N	S	S	58.7	7	58.7	7-1/2	M-W*	110 S1C	95 C	166	Q-S
61-107	63.0	37.9	65	33	2	76.2	1.69	11.9	VS	56.3	.50	11.2	S-N	U	S	59.7	3	59.7	4-1/4	M-W*	105	95 C	179	S
ND 363-1	63.0	35.5	63	35	2	76.1	1.82	12.4	VS	60.4	.45	11.3	N	S	S	58.7	7	58.7	6	M	105 C	90 C	183	S
ND 478	62.5	35.5	67	32	1	76.3	1.80	12.6	S	61.6	.32	11.9	N	VS	S	62.3	5	62.3	5-1/4	S-M	115 C	90 C	180	S
ND 479	62.0	35.7	67	31	2	76.3	1.77	11.6	S	57.2	.48	10.8	N-S	Q	S	61.9	2	61.9	3	M-W	110 C	90 C	172	Q
Wisc. 261	62.5	33.3	43	53	4	75.0	1.71	11.2	S	60.8	.32	10.5	N	VS	S	59.3	6	59.3	6-1/2	M-W*	105 S1C	95 C	179	S
Wisc. 270	62.5	33.2	59	39	2	75.9	1.70	11.2	S	59.1	.40	10.1	N-S	S	S	60.0	7	60.0	7	M	110 C	95	186	Q
Wisc. 271	62.5	33.7	43	54	3	75.0	1.72	11.3	S	60.4	.42	10.4	N	S	S	59.7	6	59.7	6-1/4	M	100	90 C	170	S-Q

* M-W SLD

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Nixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.

TABLE 8

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

St. Paul, Minnesota

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min.		Flr. Min. @ Ext. 65% Ex. Pro.	Flr. Pro.		Kern. Char.	Mlg. Char.	Mlg. Per.	Mix. Abs.		Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				g.	%	%	2/	%	2/	2/	%	2/	2/	3/	2/	%	2/	min.	6/	2/	8/	cc.	3/
Chris	13751	63.5	29.7	40	57	3	74.9	1.84	14.8	14.8	14.8	S	S	S	64.4	3	64.4	3-1/2	S	115 SIC	70 0	208	S-Q
Justin	13462	63.0	30.3	40	57	3	74.9	1.86	14.3	14.3	14.3	S	S	S	64.2	5	64.2	5	S	100 C	90 S10	190	S
Manitou	13775	62.5	27.3	39	57	4	74.8	1.87	14.8	14.8	14.8	S	S	S	63.5	2	63.5	3-1/4	S	100 C	90 S10	200	S
Marquis	3641	60.5	26.8	23	71	5	73.9	1.98	12.3	12.3	12.3	S-Q	N	Q	60.3	2	60.3	4-1/4	M-W	115 SIC	95	167	U
Selkirk	13100	59.0	30.4	39	57	4	74.8	2.02	14.3	14.3	14.3	S	N	S	62.5	3	62.5	3-1/2	M	100 C	95	177	S-Q
Thatcher	10003	60.5	25.6	12	81	7	73.3	1.89	13.7	13.7	13.7	S-Q	N	S	62.5	2	62.5	3-1/4	M-S	105	80 0	184	S-Q
RL 4200	62.5	29.9	32	65	3	74.5	1.93	1.84	14.1	14.1	14.1	S	N	S-Q	62.3	3	62.3	3-1/4	S-M	110 SIC	90	205	S-Q
II-55-11	13773	63.5	37.5	50	46	4	75.3	1.84	14.1	14.1	14.1	S	N	S	63.5	4	63.5	3-4/4	M-S	105	95	208	S
II-55-16	63.0	37.3	56	41	3	75.7	1.83	13.5	14.1	14.1	14.1	S	N	S	64.2	4	64.2	3-1/2	M-S	110	100	199	S
II-56-40	62.0	34.1	39	57	4	74.8	1.91	12.9	14.1	14.1	14.1	S	N	VS	60.0	5	60.0	6-1/4	M-S	115	90	196	Q
II-59-91	62.0	31.4	40	57	3	74.9	1.84	13.8	14.1	14.1	14.1	S	N	S	63.5	5	63.5	4-3/4	M-S	110 W	90	191	S
61-107	13937	61.0	36.0	53	43	4	75.5	1.82	13.5	13.5	13.5	S	N-S	Q	61.6	2	61.6	3	M-W	110	95 C	185	U
ND 363-1	13828	60.5	33.1	48	49	3	75.3	1.98	15.8	15.8	15.8	S	N	S	64.2	3	64.2	3-1/2	S	95	95	195	S
ND 478	59.5	31.3	47	50	3	75.2	1.92	15.7	16.1	16.1	16.1	S	N	VS	66.6	5	66.6	5	S	110	95	191	S
ND 479	61.0	31.2	51	45	4	75.4	1.95	14.5	16.1	16.1	16.1	S	N	S	65.7	3	65.7	2-3/4	M	110 SIC	90	187	Q
Wisc. 261	61.0	31.1	31	64	5	74.3	1.81	13.8	16.1	16.1	16.1	S	N	VS	62.8	5	62.8	5-1/2	M	105 SIC	85 0	186	S-Q
Wisc. 270	61.0	33.1	45	51	4	75.1	1.86	13.1	16.1	16.1	16.1	S	N	VS	63.2	4	63.2	4-3/4	M-S	115 SIC	90 0	200	S
Wisc. 271	60.5	32.3	35	61	4	74.6	1.89	14.6	16.1	16.1	16.1	S	N	VS	64.2	5	64.2	5-3/4	M-S	100 SIC	85 0	205	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, N - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ 0 - Open, I - Irregular, S - Seedy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.

TABLE 9

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Waseca, Minnesota

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min.		Wht. Pro.	Kern. Char.	Flr. E-t.	Flr. Min. @ 65% Ex.		Mlg. Char.	Mlg. Per.	Mix. Abs.		Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				Lg.	Med.	Sm.	2/ #	3/ #			1/ #	2/ #	3/ #			2/ %	3/ %							
Chris	13751	63.5	28.7	40	58	2	74.9	1.76	15.0	S	61.0	.44	14.5	N	S	64.2	3	64.2	3-1/2	S	105	80 OI	200	S
Justin	13462	61.0	27.2	13	81	6	73.4	1.80	14.7	S	60.6	.43	14.1	N	S	64.2	6	64.2	6	S	90	90 I	200	S
Manitou	13775	61.0	26.2	21	75	4	73.9	1.77	14.4	S	61.8	.46	14.0	N	S	63.2	4	63.2	4-1/4	S	95	95 S10	155	S
Marquis	3641	58.5	22.8	1	86	13	72.4	1.82	12.1	Q	58.2	.38	11.4	N-S	S-Q	59.7	4	59.7	4-1/2	M	100 C	90 T	177	Q
Selkirk	13100	59.0	27.8	21	71	8	73.7	1.84	13.2	S	61.4	.47	12.8	N-S	S-Q	62.5	4	62.5	4-1/2	M	95 C	90 T	170	S-Q
Thatcher	10003	59.5	21.2	1	89	10	72.6	1.72	12.7	Q	61.0	.49	11.5	N	S-Q	61.3	5	61.3	4-3/4	M	100 C	90 T	182	S-Q
RL 4200	61.0	28.7	35	62	3	74.6	1.88	14.5	S	S	59.1	.49	14.0	N	S-Q	63.5	4	63.5	4	M-S	95 C	80 OI	202	S
II-55-11	13773	64.5	35.3	49	47	4	75.3	1.79	13.9	S	59.7	.44	13.6	N	S	63.8	5	63.8	4-3/4	M-S	95 C	90 OI	199	S
II-55-16	64.5	36.4	61	35	4	75.9	1.73	13.9	VS	S	58.9	.44	13.4	N	S-Q	65.0	4	65.0	4-1/4	S-M	110 C	100	200	S
II-56-40	63.0	34.4	43	54	3	75.0	1.78	13.4	S	S	61.0	.43	13.0	N	S	62.8	6	62.8	5-1/2	S-M	105	95 C	200	S-Q
II-59-91	62.5	29.5	38	57	5	74.7	1.71	13.2	S	S	59.7	.43	12.5	N	S	64.7	7	64.7	7-3/4	S-M	115	90 C	175	Q
61-107	61.5	32.8	35	55	6	74.7	1.64	14.0	S	S	58.2	.46	13.8	N-S	Q-S	64.2	5	64.2	4-3/4	M-S	105 S1C	90 S10	192	S
ND 363-1	13828	60.5	27.8	27	69	4	74.2	1.93	14.4	S	59.5	.49	13.0	N-S	Q	65.0	6	65.0	6	M-S	100 C	90 S10	187	S-Q
ND 478	62.0	32.2	53	45	2	75.6	1.87	15.8	S	S	59.0	.43	15.1	N-S	S-Q	68.5	7	68.5	6-1/4	S	105 C	80 O	218	S
ND 479	62.5	33.2	62	36	2	76.0	1.81	14.2	VS	S	59.5	.43	13.8	S-N	Q-U	67.0	3	67.0	3	M	105 S1C	90 O	182	Q
Wisc. 261	62.0	28.3	17	77	6	73.6	1.80	13.7	S	S	59.9	.41	13.3	N-S	S-Q	64.4	7	64.4	8-1/2	M-S	100 C	80 OI	197	Q-S
Wisc. 270	61.0	29.8	25	67	8	73.9	1.81	13.5	S	S	58.6	.41	12.9	S	Q-U	64.2	8	64.2	9-1/2	M-S	105 C	90 S10	190	Q
Wisc. 271	62.0	27.5	16	78	6	73.5	1.77	14.6	S	S	59.7	.41	13.8	N-S	S-Q	64.2	8	64.2	9	S-M	105 C	95 S10	200	Q

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, N - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

TABLE 10

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Bozeman, Montana

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Mht.		Wht. Pro.	Kern. Char.	Flr. Ext.	Min. @ 65°F Ex.		Flr. Pro.	Mls. Char.		Mlg. Per.	Mix. Pat.		Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				g.	%	%	2/	%	2/	3/	2/	2/	%	2/	2/	4/	3/	2/	5/	2/	min.	5/	1/	g/		
Chris	13751	60.5	23.5	3	88	9	72.7	1.73	15.4	S	57.7	.47	14.9	N	S			65.3	4	65.3	3-3/4	N-S	120 SLC	90 OI	193	S
Justin	13462	58.5	25.8	7	85	8	73.0	1.83	16.1	S	54.0	.48	15.3	N	Q-S			67.3	5	67.3	4-1/2	N-S	115 SLC	95 S10	188	S
Manitou	13775	60.0	23.3	2	90	8	72.7	1.80	15.8	S	57.9	.46	14.7	N	S			63.5	3	63.5	3-1/2	N-S	110 SLC	90	193	Q-S
Marquis	3641	57.5	22.4	2	86	12	72.5	1.93	16.1	S	55.1	.50	15.1	N	Q-S			65.7	6	65.7	5-1/4	N-S	110 SLC	95 S11	197	S
Selkirk	13100	56.0	24.6	3	86	11	72.6	1.89	15.4	S-Q	57.1	.51	14.9	N	S			65.7	4	65.7	4	M	105 C	95	177	S
Thatcher	10003	59.0	22.5	2	88	10	72.6	1.82	15.5	S	57.5	.50	14.8	N	S			65.0	4	65.0	3-1/2	N-S	105 C	95	197	S-Q
RL 4200	59.5	25.2	4	90	6	72.9	1.76	15.7	S		57.1	.48	14.9	N	S			63.5	3	63.5	3-1/4	N-S	120 BC	95	191	Q
II-55-11	13773	61.5	29.1	14	79	7	73.4	1.73	15.0	S	58.5	.47	13.9	N	S			64.2	5	64.2	4-3/4	N-S	115 SLC	95	202	S
II-55-16	61.0	30.6	19	72	9	73.5	1.60	14.4	S		58.3	.47	13.5	N	S			63.2	4	63.2	4-3/4	M	120 SLC	95	192	Q-S
II-56-40	59.5	28.9	12	80	8	73.2	1.79	14.5	S		57.5	.48	13.8	N	S			62.5	6	62.5	7	M-S	115 SLC	90 S10	223	Q
II-59-91	58.0	24.6	4	86	10	72.7	1.78	15.3	S		55.0	.51	14.7	N-S	Q-U			65.7	6	65.7	6-3/4	S-M	110 SLC	90	209	S
61-107	13937	60.0	33.1	21	73	6	73.8	1.93	15.1	S	55.2	.47	14.7	N	Q-S			64.2	4	64.2	4	M-S	110 SLC	100	180	S
ND 363-1	13828	59.5	27.3	12	79	9	73.2	1.90	15.5	S	59.2	.49	14.8	N	S			66.3	5	66.3	4-1/2	S-M	95 SLC	95	194	S
ND 478	58.5	28.2	7	87	6	73.1	1.85	15.2	S		57.3	.52	14.6	N-S	Q			66.3	5	66.3	4-1/2	S-M	110 SLC	85 O	205	S
ND 479	57.5	25.3	5	87	8	72.9	1.77	15.5	S		55.2	.54	14.8	N-S	Q-U			66.3	3	66.3	3	W	110 C	95 T	174	U
Wisc. 261	56.0	22.7	1	77	22	72.0	1.87	15.3	S		55.9	.56	14.4	N	Q			65.0	7	65.0	8-1/2	S-M	105 VC	80 IO	205	S
Wisc. 270	55.0	24.5	3	84	13	72.5	1.74	14.9	Q-S		53.3	.54	13.9	N-S	U			66.3	9	66.3	11-3/4	S	115 SLC	100	200	Q
Wisc. 271	54.5	21.6	0	75	25	71.8	1.97	15.5	Q-S		55.2	.57	14.5	N	Q-U			65.3	7	65.3	8-1/2	S-M	110 C	95	205	S-Q

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.

TABLE 11

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Havre, Montana

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size			Pet. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min. @ 65% Ex.	Flr. Pro.	Mlg. Char.	Mlg. Per.	Min. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				g.	%	z																		
Chris	13751	56.5	17.5	0	71	29	71.6	1.92	18.9	S	59.0	.64	17.0	N	S-Q	67.9	6	67.9	5-1/4	S	100 S1C	60 IO	207	Q-S
Justin	13462	57.0	21.5	1	86	13	72.4	1.88	18.4	S	59.4	.53	17.7	N	S	68.8	7	68.8	5-3/4	S	95	80 O	204	S
Manitou	13775	55.5	17.5	0	70	30	71.5	1.81	18.2	Q-S	57.5	.55	17.0	N	S-Q	67.0	6	67.0	5-1/4	S	90	70 IO	212	S-Q
Marquis	3641	56.5	19.2	0	75	25	71.5	1.85	18.7	S	55.6	.55	17.0	N	Q	67.9	6	67.9	5-1/4	S	95	70 O	215	S-Q
Selkirk	13100	32.5	19.4	0	70	30	71.5	1.85	17.1	Q-S	58.7	.52	16.6	N	S	67.9	6	67.9	5-3/4	S	95	90 O	188	S
Thatcher	10003	55.5	17.8	0	66	34	71.3	1.88	18.7	Q-S	57.5	.62	17.6	N	Q	67.9	6	67.9	5	S	55	70 O	211	S-Q
RL 4200	57.0	20.6	0	84	16	72.2	1.72	18.1	S	57.5	.56	17.1	N	Q	VS	64.7	4	64.7	3-1/2	M-S	110 C	80 O	187	Q-U
II-55-11	13773	60.0	24.2	0	88	12	72.4	1.81	17.7	S	55.2	.49	16.6	N	VS	66.3	7	66.3	7-1/4	S	120 S1C	70 IO	209	S-Q
II-55-16	59.0	24.8	0	84	16	72.2	1.78	17.1	S	57.8	.49	16.1	N	S	S	67.0	8	67.0	8-1/4	S	115 S1C	80 O	195	S
II-56-40	58.0	24.0	1	87	12	72.5	1.62	16.9	S	57.7	.44	16.4	N-S	Q	Q	64.2	11	64.2	13-1/4	S	120 W	70 IO	245	Q
II-59-91	56.0	20.1	0	82	18	72.1	1.72	18.0	S	56.1	.50	17.1	N	Q	Q	68.2	8	68.2	10-1/4	S	105 S1C	80 O	222	Q-S
61-107	13937	57.5	23.4	1	86	13	72.4	1.75	17.8	S	57.1	.47	17.2	N	S	68.5	7	68.5	6-3/4	S	105 C	90 IO	217	S
ND 363-1	13828	56.5	20.6	1	82	17	72.2	1.82	18.6	S	58.7	.51	18.1	N	S	73.3	9	70.3	10	S	100 S1C	80 O	215	S-Q
ND 478	56.5	22.4	0	88	12	72.4	1.80	18.0	S	59.2	.48	17.4	N	VS	VS	70.3	9	70.3	10-1/4	S	120 S1C	70 O	207	Q
ND 479	57.5	23.3	0	89	11	72.5	1.85	17.3	S	57.9	.44	16.5	N	VS	VS	68.5	5	68.5	3-1/2	M	100	90 T	170	U
Wisc. 261	57.5	18.9	0	60	40	71.0	1.75	17.8	S	58.5	.45	17.2	N	VS	VS	67.6	10	67.6	10-1/4	S	105 S1C	95	205	S-Q
Wisc. 270	58.0	21.4	0	80	20	72.0	1.73	17.6	S	57.1	.42	17.0	N-S	Q	Q	67.9	10	67.9	11-1/2	S	105 S1C	80 IO	229	Q-S
Wisc. 271	56.0	18.5	0	55	45	70.8	1.76	18.0	S-Q	58.2	.47	17.3	N	S	S	67.9	10	67.9	10-1/2	S	105 S1C	80 IO	210	S-Q

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

TABLE 12

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Sidney, Montana

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #Bu.	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Flr. 65% Ex.	Min. @ 2/ %	Flr. 2/ %	Mlg. Char.	Mlg. Per.	Mix.		Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Leaf Vol.	Bake Eval.
				Lg.	Med.	Sm.											2/ %	2/ %							
Chris	13751	61.0	23.4	1	92	7	72.7	1.57	15.3	S	58.1	.45	.45	14.3	N	S	64.2	5	64.2	5-1/2	S	115 SLC	90	183	S
Justin	13462	61.0	27.9	9	86	5	73.2	1.53	15.3	S	57.3	.40	.40	14.6	N	S	66.3	6	66.3	5-1/2	S	110 SLC	90 I	177	S
Manitou	13775	60.0	23.4	2	93	5	72.9	1.48	15.6	S	58.3	.41	.41	14.0	N	S	62.3	4	62.3	4	S	110 C	95	182	Q-S
Marquis	3641	61.5	25.3	5	90	5	73.0	1.55	15.0	S	55.7	.43	.43	13.8	N	Q	63.2	4	63.2	4	S	110 SLC	90	186	S-Q
Selkirk	13100	58.5	27.1	3	91	6	72.9	1.48	13.9	S	59.0	.41	.41	13.2	N	S	63.5	5	63.5	4-3/4	S-M	105 C	95	172	S
Thatcher	10003	61.5	24.1	1	92	7	72.7	1.46	14.6	S	58.1	.41	.41	13.6	N	S	62.8	5	62.8	4-1/2	S-M	105 SLC	95 S10	185	S-Q
RL 4200	61.0	26.5	3	94	3	73.0	73.0	1.44	14.3	S	57.3	.39	.39	13.7	N	S	63.2	3	63.2	3-1/2	S-M	105 SLC	95 S10	177	S-Q
II-55-11	13773	62.5	33.0	23	75	2	74.1	1.43	14.3	S	59.1	.40	.40	13.9	N	S	64.4	5	64.4	5-1/4	S-M	115 SLC	90 S110	200	S
II-55-16	63.5	32.7	22	76	2	74.0	74.0	1.41	14.3	S	57.1	.42	.42	13.3	N	S	63.8	6	63.8	5-1/2	S-M	115 C	90 S10	199	S
II-56-40	60.5	29.8	10	86	4	73.3	73.3	1.44	13.9	S	58.1	.39	.39	13.4	N	S	60.7	10	60.7	10	M-S	105	90 S110	210	Q
II-59-91	60.5	27.0	3	93	4	73.0	73.0	1.48	14.3	S	57.1	.42	.42	13.2	N-S	S-Q	64.2	6	64.2	6-1/2	M-S	110 C	95	183	S
61-107	13937	61.0	27.6	24	74	2	74.1	1.36	14.5	S	57.6	.39	.39	14.1	N-S	S-Q	64.2	5	64.2	4	S	115	95	187	S
ND-363-1	60.0	27.0	5	90	5	73.0	73.0	1.64	15.1	S	58.3	.43	.43	14.1	N	S	64.4	7	64.4	7-1/4	S	100 C	90 S10	193	S-Q
ND 478	59.5	29.0	13	84	3	73.5	73.5	1.58	15.2	S	59.2	.39	.39	14.5	N	S	66.3	6	66.3	6-1/4	M-S	105	90 0	185	S
ND 479	60.0	29.7	10	87	3	73.4	73.4	1.57	15.0	S	57.3	.41	.41	14.3	N-S	S-Q	67.0	4	67.0	3	S	105 SLC	80 01	189	Q
Wisc. 261	60.0	26.2	1	89	10	72.6	72.6	1.43	14.6	S	59.8	.38	.38	14.0	N	S	64.2	7	64.2	8	S	105 SLC	88 0	205	Q
Wisc. 270	60.0	26.8	5	90	5	73.0	73.0	1.45	14.5	S	57.1	.37	.37	13.4	N-S	S-Q	64.7	9	64.7	9	S	105 SLC	90 01	203	Q
Wisc. 271	60.5	25.7	2	90	8	72.7	72.7	1.43	14.3	S	59.2	.40	.40	13.6	N	S	63.2	8	63.2	8-1/4	M	105 C	90	200	Q
1/ Clean dry - subtract 1#Bu. for dockage-free T.W.																									
2/ 14% moisture basis.																									
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.																									
4/ N - Normal, H - Hard, S - Soft.																									
5/ Refer to Reference Mixograms for numerical curve pattern.																									
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.																									
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.																									
Z/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sfr - Slightly, C - Close, H - Harsh.																									

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

TABLE 13

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Carrington, North Dakota

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Lg.	Size Md.	Sm.	Pot. Yld.	Wht.		Kern. Char.	Flr. Ext.	Min. @ 65% Ex.		Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix.		Bake Abs.	Mix. Time	Dough 6/ g/	Crumb Color	Crumb Grain g/	Loaf Vol.	Bake 3/ g/
								2/ %	3/ %			2/ %	5/ %				2/ %	5/ %							
Chris	13751	62.5	31.1	38	59	3	74.8	1.42	15.7	S	56.3	.40	14.3	N	S	S	66.0	4	S-M	120 SIC	90 S10	195	S		
Justin	13462	61.5	34.6	56	41	3	75.7	1.60	15.3	S	56.5	.43	14.2	N	S	S	67.6	5-3/4	M-S	115	90 S10	188	S		
Manitou	13775	63.0	31.2	40	57	3	74.9	1.32	15.4	S	57.9	.41	14.3	N	S	S	64.4	2-3/4	M-S	105	80 0	194	Q		
Marquis	3641	60.5	32.2	25	67	8	73.9	1.51	15.3	S-Q	56.7	.44	13.6	N	S	S	64.2	3	M	115 SIC	95	182	Q		
Selkirk	13100	59.5	35.2	37	58	5	74.6	1.59	14.9	S	58.4	.43	14.6	N	S	S	65.3	5-1/2	M	110	95 S10	168	S-Q		
Thatcher	10003	61.0	26.7	11	81	8	73.2	1.52	14.3	Q	57.4	.45	13.1	N	S-Q	S	63.5	4-1/2	M	110 SIC	70 0I	180	Q		
RL 4200	61.5	32.7	45	53	2	75.2	1.48	15.4	S	56.3	.42	14.5	N	S	S	S	64.2	2-3/4	M	115 C	75 0I	185	U		
II-55-11	13773	63.0	40.3	60	37	3	75.9	1.56	15.2	S	55.6	.43	13.9	N	S-Q	S	66.6	4-1/2	M-S	125 SIC	65 0I	205	Q		
II-55-16	64.0	41.2	62	35	3	76.0	1.47	14.7	S	55.0	.42	13.7	N	Q	S	Q	67.0	4-1/2	M-S	115	95	183	S		
II-56-40	62.0	35.5	52	45	3	75.5	1.53	15.4	S	54.6	.42	14.6	N-S	U	S	U	65.0	6	M-S	120	90 I	218	S		
II-59-91	60.5	32.3	31	64	5	74.3	1.51	15.1	S	54.5	.47	13.7	N	U	S	U	65.7	6	S-M	110 W	100	185	S		
61-107	13937	61.0	42.0	53	43	4	75.5	1.44	15.0	S	54.6	.44	14.4	N	U	S	65.7	4	M	120 W	100	190	S		
ND 363-1	13828	63.0	39.2	76	23	1	76.8	1.55	15.4	VS	57.2	.42	14.3	N	S	S	67.0	4	M	105	90 0	200	S		
ND 478	61.5	36.4	67	31	2	76.3	1.60	16.4	S	56.5	.43	15.2	N	S	S	Q	67.9	5	S-M	105	80 0	204	S-Q		
ND 479	61.5	36.6	61	37	2	76.0	1.60	15.4	S	56.3	.44	14.8	N-S	N	S	Q	66.6	2-3/4	W	120 SIC	90 0I	174	U-Q		
Wisc. 261	62.5	34.2	31	61	8	74.2	1.53	14.3	S	59.9	.43	12.9	N	S	S	S	64.2	5	M-S	115 SIC	90 0	185	S-Q		
Wisc. 270	61.0	37.0	52	44	4	75.4	1.56	14.3	S	58.9	.40	12.9	N	S	S	S	65.0	6	S-M	125	95 S10	206	S-Q		
Wisc. 271	62.0	33.8	33	63	4	74.5	1.50	14.3	S	60.9	.41	13.3	N	S	S	S	65.0	5	M-S	105 C	95	187	S		
1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.																									
2/ 14% moisture basis.																									
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.																									
4/ N - Normal, H - Hard, S - Soft.																									
5/ Refer to Reference Mixograms for numerical curve pattern.																									
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.																									
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.																									
8/ 0 - Open, I - Irregular, S - Soggy, T - Thick Wall, Slt - Slightly, C - Close, H - Harsh.																									

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ 0 - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

TABLE 14

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Dickinson, North Dakota

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht.		Wht. Pro.	Kern. Char.	Flr.		Min. ² 65%Ext.		Mlg. Char.	Mlg. Per.	Min.		Bake Abs.	Mix. Time	Dough	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.		
				L.	Med.		Sm.	2/ %			3/ %	2/ %	3/ %	2/ %			3/ %	2/ %								3/ %	
Chris	13751	59.0	23.5	2	94	4	72.9	1.43	16.1	S	61.7	.42	15.4	N	S	66.3	5	66.3	4-1/2	S	115	S10	90	S10	186	S	
Justin	13462	61.5	29.7	22	76	2	74.0	1.50	15.7	S	60.3	.36	16.1	N	S	68.5	7	68.5	5	S	100	85	OH	168	S-Q		
Manitou	13775	60.5	23.9	4	92	4	73.0	1.43	15.9	S	61.2	.41	15.3	N	S	65.3	5	65.3	5	S	90	C	90	OI	185	S	
Marquis	3641	61.0	28.2	15	83	2	73.7	1.46	14.9	S	60.9	.40	14.2	N	S	65.2	5	65.2	5-1/4	M-S	105		90		175	S	
Selkirk	13100	60.5	29.7	12	86	2	73.5	1.44	15.0	S	62.1	.37	14.3	N	S	65.0	5	65.0	4-1/2	N-S	105		90	I	172	S-Q	
Thatcher	10003	62.0	26.0	4	94	2	73.1	1.39	15.6	S	59.7	.37	14.7	N	S	63.2	4	63.2	4-1/2	S	95		80	OI	208	S-Q	
RL 4200	60.0	24.8	5	92	3	73.1	1.49	17.1	S	58.9	.42	16.4	N	Q-S	65.7	4	65.7	3-1/2	S	100	C	90	O	193	Q		
II-55-11	13773	63.5	31.7	13	85	2	73.6	1.39	15.7	S	60.6	.41	15.0	N	S	66.3	6	66.3	7	S	100		80	IO	192	S-Q	
II-55-16	63.0	32.2	27	71	2	74.3	1.43	14.9	S	58.7	.42	14.0	N	Q-S	66.6	7	66.6	6-1/2	S	90		90	O	209	Q		
II-56-40	61.0	30.2	8	90	2	73.3	1.42	15.2	S	59.5	.40	14.6	N	S	63.8	10	63.8	13-1/2	VS	105		80	OI	220	Q		
II-59-91	59.5	27.4	4	93	3	73.1	1.51	15.9	S	58.4	.45	14.8	N	Q	67.9	7	67.9	9-1/4	S	100		90		188	Q		
61-107	59.5	33.8	28	70	2	74.3	1.43	15.5	S	58.4	.40	15.0	N	S-Q	65.3	5	65.3	5-3/4	S	100		90	O	195	S		
ND 363-1	13828	59.0	28.1	9	88	3	73.3	1.54	16.8	S	60.6	.43	16.2	N	S-Q	66.0	7	66.0	7	S	95		80	IO	224	S-Q	
ND 478	60.5	28.3	10	88	2	73.4	1.63	17.0	S	61.2	.41	16.0	N	S	67.3	8	67.3	8-1/2	S	105		80	O	195	S-Q		
ND 479	60.5	27.9	12	86	2	73.5	1.58	16.8	S	57.9	.40	16.2	N-S	Q	67.6	4	67.6	3-1/4	M	100	C	90	C	162	U		
Wisc. 261	60.0	25.2	1	90	9	72.6	1.51	16.0	S-Q	60.7	.43	15.5	N	S	65.3	7	65.3	8	S-M	95	C	95		194	S		
Wisc. 270	57.5	25.5	2	92	6	72.8	1.58	16.3	S	59.3	.42	15.9	N	S-Q	67.6	9	67.6	12	S	80	DC	70	OI	237	U		
Wisc. 271	59.0	24.4	1	89	10	72.6	1.57	16.6	S-Q	60.6	.44	15.5	N	S-Q	66.3	8	66.3	8-1/2	S-M	100	TC	95	S10	185	S		
1/ Clean dry - subtract 1#Bu. for dockage-free T.W.																											
2/ 14% moisture basis.																											
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.																											
4/ N - Normal, H - Hard, S - Soft.																											
5/ Refer to Reference Mixograms for numerical curve pattern.																											
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.																											
7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.																											
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SR - Slightly, C - Close, H - Harsh.																											

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mallow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

TABLE 15

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Fargo, North Dakota

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min.		Wht. Pro.	Kern. Char.	Flr. Ext.	Min. @ 65% Ex.		Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
				Lg.	Med.	Sm.		%	%				%	%													%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soegy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

TABLE 16

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Langdon, North Dakota

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%E.. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
				Lg.	Med. Sm.																		
Chris Justin Manitou Marquis Selkirk	13751	62.0	26.7	16	82	2	73.7	1.39	15.8	S	57.2	.44	15.5	N	S-Q	66.6	5	66.6	4-1/4	M-S	105 C	90 I	160 S
	13462	62.0	34.0	50	48	2	75.4	1.50	16.1	S	56.5	.39	15.5	N	S	67.9	7	67.9	6-3/4	M-S	100 S1C	90 T	132 S
	13775	61.5	26.9	15	82	3	73.6	1.41	16.1	S	58.4	.37	15.3	N	S	64.7	3	64.7	3-3/4	S-M	105 S1C	80 OI	171 Q
	3641	63.0	29.8	34	64	2	74.6	1.29	14.2	S	55.3	.39	13.1	N	Q	64.2	3	64.2	3-1/4	M-W	105 S1C	90 T	155 Q
	13100	61.0	32.6	37	62	1	74.8	1.37	14.7	S	59.0	.39	13.9	N	S	63.2	4	63.2	4-1/2	M-W	105 C	90 T	155 Q-S
Thatcher RL 4200 II-55-11 II-55-16 II-56-40	10003	62.5	28.7	17	82	1	73.8	1.33	15.3	S	58.3	.38	14.5	N	S	63.5	4	63.5	3-1/2	S-M	105 C	90 OT	169 S-Q
	RL 4200	61.5	31.2	25	74	1	74.2	1.44	16.7	S	57.3	.39	16.4	N	S	64.7	3	64.7	3	S-M	105 C	90 IO	166 S-Q
	II-55-11	63.5	35.7	47	52	1	75.3	1.41	15.9	S	56.4	.41	15.1	N	S-Q	65.7	6	65.7	7	S-M	105 S1C	90 OT	165 S-Q
	II-55-16	63.5	38.6	53	46	1	75.6	1.38	15.5	S	56.2	.40	15.2	N	S	67.0	6	67.0	6-1/4	M-S	110 C	90 OT	160 S-Q
	II-56-40	62.0	36.2	42	57	1	75.1	1.41	16.0	S	57.1	.38	15.3	N	S	65.0	9	65.0	11-3/4	M-S	115	70 IO	184 Q
II-59-91 13937 ND 363-1 ND 478 ND 479	II-59-91	62.0	28.8	22	76	2	74.0	1.45	16.1	S	54.3	.44	15.0	N-S	Q-U	66.0	7	66.0	9	M-S	110 S1C	95 T	155 S
	13937	62.5	39.4	55	44	1	75.7	1.25	16.0	S	55.0	.40	15.2	N	Q	64.4	4	64.4	4	M-S	105 C	90 I	160 S-Q
	ND 363-1	61.0	32.5	28	71	1	74.4	1.55	16.5	S	57.8	.41	15.5	N	S	66.0	6	66.0	6	S-M	100 C	90 OT	166 S
	ND 478	60.5	32.6	39	50	1	74.9	1.52	16.4	S	56.9	.42	15.9	N-S	Q	67.9	7	67.9	8-3/4	S-M	105 C	90 T	153 S
	ND 479	61.5	32.9	44	55	1	75.2	1.47	15.9	S	55.5	.40	15.2	N-S	Q	66.3	4	66.3	3-1/2	M-W	105 C	90 T	156 Q
Misc. 261 Misc. 270 Wisc. 271		61.5	27.6	9	86	5	73.2	1.39	14.4	S-Q	56.7	.40	13.6	N	S	62.5	9	62.5	9-1/2	M-S	95 S1C	98 T	175 Q
		60.0	29.5	15	82	3	73.6	1.45	15.3	S	55.2	.40	14.1	N-S	Q-U	65.7	10	65.7	12	S-M	100	95 S10	185 Q-S
		60.0	27.2	12	79	9	72.9	1.49	15.3	S	57.4	.40	14.4	N	S	64.2	8	64.2	11	S-M	95 C	90 T	184 Q-S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.

TABLE 17

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Minot, North Dakota

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size			Pot. Yld.	Wht.		Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	65%Ex. 2/	Min.@ 2/	Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. 2/	Beke Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake 3/
				Lg.	Med.	Sm.		2/	3/																		
Chris	13751	62.5	24.9	6	91	3	73.2	1.31	16.0	S	57.8	.46	14.9	N	S-Q	66.3	5	66.3	6	S-M	105	SIC	95	SIO	185	S	
Justin	13462	62.0	29.4	32	67	1	74.6	1.32	16.6	S	58.3	.36	15.8	N	S	68.5	8	68.5	8-3/4	S-N	100		90	IO	196	S	
Manitou	13775	60.5	24.5	5	91	4	73.1	1.28	13.5	S	58.3	.37	14.7	N	S	65.7	5	65.7	5-1/2	S-M	100		90	IO	196	S	
Marquis	3641	62.5	28.2	13	85	2	73.6	1.28	14.4	S	55.9	.41	13.7	N	Q	66.3	5	66.3	5	N-S	120	W	90		176	S-Q	
Selkirk	13100	61.5	32.1	30	67	3	74.4	1.18	15.0	S	62.1	.37	14.2	N	S	66.0	6	66.0	6-1/2	N-S	100		90		178	S	
Thatcher	10003	62.0	27.0	13	84	3	73.5	1.22	15.4	S	58.3	.37	14.8	N	S	65.0	5	65.0	5-1/4	S	105		70	OI	212	Q-S	
RL 4200	62.0	30.4	18	80	2	73.8	1.31	14.7	14.7	S	57.4	.38	13.9	N	S	64.7	3	64.7	3-1/2	M-S	100		80	0	181	Q	
II-55-11	13773	62.5	32.6	33	64	3	74.5	1.29	15.4	S	58.5	.39	14.6	N	S	65.7	6	65.7	6	S-M	110	SIC	90	I	193	S	
II-55-16	63.5	35.8	36	63	1	74.8	1.31	15.2	15.2	S	57.7	.40	14.4	N	S	64.2	7	64.2	5	S-M	90		90		195	Q-S	
II-56-40	62.0	30.6	20	78	2	73.9	1.31	15.5	15.5	S	58.1	.39	14.8	N	S	65.7	7	65.7	9-1/4	S-M	90		90		195	S	
II-59-91	61.0	26.2	5	92	3	73.1	1.28	14.6	14.6	S	55.7	.39	13.1	N	Q	65.3	6	65.3	9	M-S	95		80	0	179	Q-S	
61-107	13937	61.0	32.6	28	69	3	74.3	1.31	15.2	S	57.9	.35	14.8	N	S	66.3	5	66.3	5-3/4	S-M	105	SIC	90	OI	190	S	
ND 363-1	13828	62.5	36.5	47	51	2	75.3	1.51	15.5	S	57.8	.40	14.2	N	S	67.9	5	67.9	5-1/2	M	110	SIC	80	0	191	S-Q	
ND 478	61.5	30.4	26	72	2	74.2	1.49	16.0	16.0	S	59.0	.37	15.0	N	S	68.5	6	68.5	6-3/4	S-M	120	SIC	95	SIO	194	S	
ND 479	62.0	31.4	31	67	2	74.5	1.35	15.2	15.2	S	55.6	.44	14.2	N-S	Q-U	70.0	5	70.0	4	M	100		90	0	185	Q	
Wisc. 261	62.0	29.9	7	90	3	73.2	1.21	13.9	13.9	S	58.6	.36	12.9	N	S	64.7	7	64.7	9-1/2	M	90	SIC	95		169	Q	
Wisc. 270	61.5	33.9	27	71	2	74.3	1.30	14.6	14.6	S	56.7	.35	13.1	N-S	Q-U	65.7	7	65.7	10	M-S	95		90	0	180	S-Q	
Wisc. 271	62.5	30.1	8	81	11	72.9	1.18	13.5	13.5	S	59.2	.36	12.6	N	S	64.2	7	64.2	8-1/2	M-S	115	SIC	95	SIO	175	S-Q	

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close, H - Harsh.

TABLE 18

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Williston, North Dakota

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size		Wht. Min.	Wht. Pr.	Kern. Char.	Flr. Est.	Flr. Min. @		Mlg. Char.	Mlg. Per	Mix.		Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				Lg.	Med. Sm.	2/ %	2/ %	3/ %	2/ %	2/ %	2/ %	4/ %	3/ %	2/ %	2/ %	2/ %	2/ %	6/ %	7/ %	g/ %	cc.	
Chris	13751	58.5	21.6	1	88	11	1.47	S	60.2	.48	16.8	N	S-Q	67.0	6	67.0	5-1/4	S	105	85 IO	214	S
Justin	13462	57.0	24.4	3	91	6	1.56	S	59.4	.43	16.8	N	S	67.3	6	67.3	5-3/4	S	105	80 IO	211	S
Manitou	13775	56.0	21.3	1	86	13	1.58	S	58.6	.47	16.8	N	Q-S	67.3	5	67.3	5-1/4	S	105	80 IO	208	S
Marquis	3641	57.5	24.6	2	90	8	1.52	S	58.1	.45	16.3	N	Q-S	67.9	5	67.9	5	M-S	110	70 IO	200	S-Q
Selkirk	13100	56.5	26.7	4	90	6	1.49	S	61.1	.45	15.6	N	S	67.0	5	67.0	6	M-S	105 C	95	184	S
Thatcher	10003	57.5	22.2	2	89	9	1.54	S	58.1	.44	16.6	N	S-O	67.0	6	67.0	5	S	110 C	85 0	214	S
RL 4200	58.0	23.7	2	91	7	72.8	1.53	S	58.8	.42	16.3	N	S	67.5	4	67.5	5	S	100 C	80 IO	203	S
II-55-11	13773	61.0	31.6	14	83	3	1.47	S	59.2	.43	15.8	N	S	65.3	6	65.3	6-1/4	S-M	110 SIC	85 IO	224	S-Q
II-55-16	60.5	30.9	14	82	4	73.5	1.46	S	57.8	.43	16.1	N	Q-S	67.0	6	67.0	5-3/4	S	110 SIC	80 0	209	S
II-56-40	58.5	27.2	4	86	10	72.7	1.49	S	58.8	.41	15.5	N	S	64.7	10	64.7	14	S-N	100 SIC	70 IO	233	Q
II-56-91	59.5	24.6	4	92	4	73.0	1.52	S	56.4	.50	16.1	N-S	Q-U	68.5	8	68.5	9	S-M	95 SIC	90 0	213	Q-S
61-107	59.0	31.7	18	79	3	73.3	1.40	S	56.8	.40	16.6	N	S	67.9	6	67.9	5-1/4	S	110	80 0	223	S
ND 363-1	59.0	28.2	11	86	3	73.4	1.46	S	59.4	.41	16.7	N	S	67.9	7	67.9	8-1/2	S	110 SIC	85 0	213	S-Q
ND 478	57.0	27.2	7	88	5	73.1	1.58	S	58.5	.45	16.6	N-S	Q	68.5	8	68.5	9-1/2	S	110	70 0	215	Q
ND 479	58.5	28.2	9	87	4	73.3	1.50	S	55.7	.42	15.4	S-N	U	69.1	5	69.1	4-1/4	M-S	115 SIC	90 0	175	Q
Wisc. 261	59.0	25.5	1	89	10	72.6	1.44	S	59.9	.45	16.2	N	S	67.3	7	67.3	8-1/4	S	105 SIC	85 0	209	Q-S
Wisc. 270	59.5	25.6	2	91	7	72.8	1.49	S	57.8	.44	16.1	N-S	Q	68.5	7	68.5	10-1/2	S-M	105 SIC	85 0	223	Q-S
Wisc. 271	58.5	24.3	1	89	10	72.6	1.49	S	59.7	.45	16.4	N	S	67.0	7	67.0	8-1/2	S	105 C	90 SIO	215	S-Q

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

TABLE 19

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Highmore, South Dakota

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu	1000 Wt.	Kernel Lg.	Kernel Med.	Kernel Sm.	Pot. Yld.	Wht. Min.	Wht. Prs.	Kern. Char.	Flr. Ext.	Flr. 65%Ex.	Flr. 2/	Nlg. Char.	Mlg. Per.	Min. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval
								2/	3/		2/	2/	2/	4/	3/	2/	2/	2/	min.	6/	2/	8/	cc.	
Chris	13751	61.5	29.5	9	89	2	73.4	1.90	17.0	S	58.4	.64	16.6	N	S-Q	63.5	3	63.5	2-3/4	M-S	110 S1C	80 O	19-	S-Q
Justin	13462	60.0	28.6	16	81	3	73.7	2.07	16.3	S	57.0	.57	15.6	N	S	63.3	5	63.3	3	M-S	105 S1C	90 O	189	S
Manitou	13775	62.5	29.7	30	68	2	74.4	1.83	18.2	S	57.0	.55	15.1	N	S	62.3	-	62.3	3	M-S	115 S1C	90 O	185	S-Q
Marquis	3641	59.5	24.0	1	93	6	72.5	2.11	17.5	S-Q	53.3	.62	15.5	S-N	U	61.6	3	61.6	3-1/2	S-N	105 S1C	88 O	194	Q
Selkirk	13100	58.5	28.0	7	89	4	73.2	2.02	15.5	S	57.6	.58	14.5	N	S	63.5	4	63.5	4-1/2	M	105 C	95 T	173	S
Thatcher	10003	60.5	27.2	6	90	4	73.1	1.99	14.9	S	57.2	.59	13.8	N	S	62.8	3	62.8	3-1/2	S-M	100 S1C	90	188	S-Q
RL 4200		62.0	31.5	33	66	1	74.6	1.90	16.2	S	53.7	.63	15.7	N	U-Q	64.2	3	64.2	2-3/4	M	110 S1C	90	182	S-Q
II-55-11	13773	62.0	33.9	30	67	3	74.4	1.91	15.6	S	56.3	.57	14.3	N	S-Q	63.8	4	63.8	4-1/2	M-S	105 S1C	90	193	S
II-55-16		61.5	33.7	33	64	3	74.5	1.89	15.0	S	55.0	.53	14.0	N-S	Q-U	63.8	5	63.8	5-1/4	S	110 C	90 O	199	S
II-56-40		61.5	32.6	31	66	3	74.4	1.90	16.1	S	55.0	.51	14.7	S-N	U-Q	64.4	6	64.4	7-1/4	VS	110	90 I	227	Q
II-59-91		58.5	26.3	5	91	4	73.1	2.01	16.2	S-Q	53.6	.59	14.9	S-N	U	67.3	7	67.3	7-1/2	S	100 C	90 H	202	Q
61-107	13937	62.0	36.5	53	45	2	75.6	1.85	15.4	VS	52.7	.53	14.7	S	U	63.2	4	63.2	3-3/4	M-S	105	95 S1O	192	S
ND 363-1	13828	61.5	34.0	53	46	1	75.6	1.97	15.8	VS	54.2	.52	14.3	N-S	Q	63.5	4	63.5	3-3/4	S-M	105 S1C	95	190	S
ND 478		59.0	30.6	31	67	2	74.5	2.01	16.4	S	54.6	.52	15.8	S	Q-U	66.6	6	66.6	5-3/4	S	105 S1C	80 O	212	S
ND 479		59.5	33.2	52	47	1	75.6	2.00	15.6	S	52.6	.49	14.7	S	U	64.7	3	64.7	3	M-W	55 S1C	95 C	172	Q-U
Wisc. 261		60.5	27.9	4	91	5	73.0	1.89	15.8	S	53.6	.50	14.7	S	U-Q	63.8	6	63.8	6-1/4	S-M	55 S1C	80 OI	194	Q
Wisc. 270		61.5	32.9	29	69	2	74.4	1.87	15.2	S	56.4	.44	14.4	S-N	Q	65.0	6	65.0	6	S	105 C	90 O	199	Q
Wisc. 271		60.5	28.7	5	90	5	73.0	1.86	15.8	S	55.6	.48	14.6	N-S	Q	64.4	6	64.4	7-1/2	S-M	100 C	90 O	194	Q

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.

TABLE 20

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Watertown, South Dakota

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Knt.	Kernel Size		Pot. Yld.	Wht. Min. 2/ %	Wht. Pro. 2/ %	Kern. Char. 3/ %	Flr. Ext.	Flr. 65%Ex. 2/ %	Min.@ Ex. 2/ %	Pro. Char. 2/ %	Mlg. Char. 4/ %	Mlg. Per.	Mix. Abs. 2/ %	Mix. Pat. 3/ %	Bake Abs. 2/ %	Mix. Time	Dough Char. 5/ g/	Crumb Color 7/ 1/	Crumb Grain 8/ g/	Loaf Vol.	Bake 3/ 3/
				Lg.	Med. Sm.																			
Chris Justin Manitou Marquis Selkirk	13751	60.0	24.3	3	93	4	73.0	1.57	16.9	S	57.1	.42	15.7	N	S	62.5	5	62.5	4-1/2	S-M	110 C	80 IO	187	S-Q
	13462	59.5	29.4	19	78	3	73.8	1.67	16.7	S	56.1	.43	16.0	N-S	S-Q	64.4	7	64.4	6-1/4	M-S	95 SIC	90 0	176	S
	13775	60.0	25.8	4	93	3	73.1	1.59	16.2	S	57.1	.44	14.4	N	S	61.3	4	61.3	4-1/2	S-N	100 SIC	70 0	191	Q
	3641	55.0	20.2	1	82	17	72.2	1.61	15.3	U	49.0	.52	14.2	S	U	60.3	4	60.3	5	M-S	95	95 C	179	Q
	13100	56.0	29.9	9	88	3	73.3	1.61	15.7	S	56.0	.45	14.9	N	S	62.8	4	62.8	4-3/4	M	105 SIC	90 0	171	S
Thatcher RL 4200 II-55-11 II-55-16 III-56-40	10003	57.5	23.1	1	92	7	72.7	1.66	16.0	Q	54.8	.48	15.3	N	Q	61.9	5	61.9	4-1/2	S-M	100 C	90 0	193	S-Q
		60.5	29.3	10	89	1	73.5	1.62	16.2	S	55.1	.44	15.2	N	Q	61.0	2	61.0	3	S-M	110 BC	95 S10	185	S-Q
	13773	60.5	30.5	14	84	2	73.6	1.59	16.5	S	56.0	.45	15.4	N-S	S-Q	61.3	7	61.3	5-1/4	S-M	115 BC	95	181	S
		60.5	32.3	20	78	2	73.9	1.59	15.8	S	54.2	.45	14.9	N	S	62.8	8	62.8	7-1/4	S-M	110 BC	90	185	Q
		60.0	30.2	15	83	2	73.7	1.54	15.7	S	55.1	.43	15.0	N	Q	58.7	11	58.7	11-1/2	S	105 SIC	80 0I	204	Q
II-59-91 61-107 ND 363-1 ND 478 ND 479		58.0	25.1	4	91	5	73.0	1.61	16.0	S	53.8	.47	15.5	S	U	63.8	9	63.8	10-1/4	S	110 SIC	95 C	188	Q
	13937	60.5	33.9	33	66	1	74.6	1.52	15.8	S	53.5	.44	15.1	S-N	U	62.8	5	62.8	5-1/4	S	105 SIC	100	189	S
	13828	59.0	30.2	18	79	3	73.8	1.63	16.1	S	56.3	.45	15.3	N	S	63.8	8	63.8	7-1/4	S	110 SIC	90	200	S
		58.5	30.4	25	73	2	74.2	1.67	16.3	S	55.0	.46	15.7	N-S	Q-S	65.0	8	65.0	9	VS	105 SIC	80 0	190	Q
		58.0	28.9	18	77	5	73.7	1.71	16.2	S	52.6	.47	15.8	S	U	67.3	5	67.3	4-1/2	M-S	95 SIC	90	178	S
Wisc. 261 Wisc. 270 Wisc. 271		57.5	25.1	3	90	7	72.8	1.66	16.2	S	55.6	.44	15.7	N	Q	64.4	9	64.4	9-1/4	VS	95 SIC	95 S10	194	Q
		58.0	28.9	9	87	4	73.3	1.62	15.9	S	54.7	.42	15.0	S	U-Q	64.7	9	64.7	9	S	105 SIC	95 S11	204	Q
		58.0	26.1	1	91	8	72.7	1.63	16.0	S	56.7	.44	15.2	N	S	64.2	10	64.2	10-3/4	S	105 C	95	193	Q

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

TABLE 21

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Madison, Wisconsin

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht.		Kern. Char.	Flr. Ext.	Min. @ 65% Ex.		Mlg. Char.		Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				g	%	%	2/ 2/	%			2/ 2/	%	2/ 2/	%			2/ 2/						
Chris	13751	61.5	28.5	19	79	2	73.9	1.95	S	56.3	.55	14.2	N	S-Q	65.7	4	65.7	3-1/4	M-S	95	90 C	195	S
Justin	13462	60.5	31.6	37	61	2	74.8	2.02	S	57.3	.47	14.2	N	S	66.6	6	66.6	5-3/4	S-M	95	80 IO	204	S
Manitou	13775	60.5	26.8	15	84	1	73.7	1.86	S	56.8	.52	13.3	N	S-Q	63.2	4	63.2	4	M	95	90 C	190	S
Marquis	3641	54.0	19.1	0	77	23	71.9	2.09	Q	52.2	.59	10.5	N-S	U	57.0	3	57.0	3-3/4	D	90 C	80 CH	173	U
Selkirk	13100	58.0	30.8	35	61	4	74.6	2.04	S	60.4	.53	12.5	N	S	62.5	3	62.5	3-1/2	M-N	80 DG	95 C	175	Q-S
Thatcher	10003	59.0	22.4	1	92	7	72.7	1.95	S	58.5	.54	12.8	N	S	62.5	4	62.5	4	M	95 SLC	95 C	186	S
RL 4200		60.0	28.6	25	73	2	74.2	1.88	S	56.6	.54	12.6	N	S	61.9	3	61.9	3-1/4	M-N	100 SLC	90 C	180	Q
II-55-11	13773	61.0	33.6	42	55	3	75.0	1.92	S	55.9	.50	13.4	N	S-Q	64.2	3	64.2	3	M-N	90	90 C	192	S-Q
II-55-16		61.0	35.1	49	49	2	75.4	1.86	S	53.8	.52	12.7	S-N	U	64.2	3	64.2	3-1/2	M-N	95 SLC	95	179	S-Q
II-56-40		59.5	30.1	37	60	3	74.7	1.84	S	56.3	.48	11.3	N	S	60.3	5	60.3	6-3/4	M-N*	90	90 C	185	U-Q
II-59-91		60.0	29.4	36	61	3	74.7	1.92	S	56.1	.47	12.7	N	S	62.5	4	62.5	4	M	90	90 C	195	S-Q
61-107	13937	60.0	34.4	43	49	3	75.3	1.84	S	56.1	.51	12.4	N	S	61.3	3	61.3	3-1/4	M-N*	100	90 C	187	U-Q
ND 363-1	13828	60.0	31.0	51	46	3	75.4	1.94	S	57.3	.51	13.5	N	S	63.5	3	63.5	3-1/2	M	105	95 C	198	S
ND 478		60.5	31.6	45	51	4	75.1	1.89	S	59.4	.44	13.4	N-S	Q-S	64.7	6	64.7	5-1/4	M	110	95 SII	192	S
ND 479		60.5	32.5	54	43	3	75.6	1.98	S	56.5	.49	13.3	N	S	65.0	2	65.0	2-3/4	M	95	95 H	181	Q
Wisc. 261		60.5	29.8	24	73	3	74.1	1.82	S	59.6	.42	11.8	N	VS	61.0	4	61.0	6-1/4	M	110 C	90 H	176	Q
Wisc. 270		59.5	29.8	21	75	4	73.9	1.91	S	58.4	.42	12.2	N	VS	60.3	4	60.3	5-1/2	M	95	95	185	Q
Wisc. 271		57.0	28.3	18	73	9	73.5	1.92	S	57.5	.43	10.6	N-S	S-Q	57.8	6	57.8	6-1/2	M	115 C	95 H	186	Q

* M-N SID

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Seggy, T - Thick Wall, SI - Slightly, C - Close, H - Harsh.

TABLE 22

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Laramie, Wyoming

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #Bu.	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min.		Kern. Char.	Flr. Ext.	Flr. Min. @ 65° F.		Mlg. Char.	Mlg. Pct.	Min. Abs.	Min. Pat.	Bake Abs.	Min. Time	Dough Chaf.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				Lg.	Med.	Sm.		2/ %	3/ %			2/ %	3/ %											
Chris	13751	64.0	34.6	69	29	2	76.4	1.54	12.7	S	53.7	.46	11.9	N	Q-S	63.5	2	63.5	2	M-W	105	95	160	S-Q
Justin	13462	63.0	39.8	87	11	2	77.3	1.61	13.1	S	55.9	.42	12.5	N	S	66.3	4	66.3	3-1/4	M-S	105	95 C	160	S
Manitou	13775	63.0	34.4	69	29	2	76.4	1.54	12.3	S	56.2	.43	11.5	N	S	63.2	2	63.2	2-1/4	M	80 D ³	90	170	Q-S
Marquis	3641	63.0	36.4	69	28	3	76.3	1.54	11.2	S	53.4	.49	10.4	N	Q-S	61.6	2	61.6	2-1/2	M-W	100 C	95 T	145	Q
Selkirk	13100	62.0	41.5	75	23	2	76.7	1.63	13.3	S	57.9	.46	12.6	N	S	64.4	2	64.4	2-1/4	M-W	105 SLC	95 T	150	S
Thatcher	10003	62.5	34.4	67	30	3	76.2	1.57	11.9	S	53.1	.47	11.2	N	Q-S	63.2	2	63.2	2-1/4	M-W	110 SLC	95 T	151	S
RL 4200	63.0	37.2	75	23	2	76.7	1.65	12.6	S	55.1	.45	11.8	N	S	S	63.2	2	63.2	1-3/4	M	110 BC	90 H	157	Q
II-55-11	13773	61.0	40.5	71	26	3	76.4	1.58	13.2	S	53.4	.46	12.4	N	Q-S	65.3	3	65.3	2-1/2	M	DG*	90	172	S-Q
II-55-16	63.5	41.5	77	19	4	76.7	1.55	12.2	S	54.8	.44	11.5	N	S	S	64.4	3	64.4	2-3/4	M	105 SLC	95 C	167	S
II-56-40	63.5	40.8	74	23	3	76.6	1.63	12.4	S	56.2	.42	11.6	N	S	S	62.8	2	62.8	3	M	100 SLC	95	178	S-Q
II-59-91	63.0	34.8	68	29	3	76.3	1.55	12.1	S	56.2	.43	11.3	N	S	S	63.8	3	63.8	3	M	105 SLC	95	169	S
61-107	62.0	43.9	78	19	3	76.8	1.54	12.2	S	50.6	.51	11.6	N	Q	Q	61.9	1	61.9	1-1/2	W	80 G	70 OH	148	U
ND 363-1	62.5	38.3	83	14	3	77.0	1.35	12.8	S	57.9	.41	11.6	N	S	S	63.2	2	63.2	2-1/4	M-S	105 SLC	90	173	S
ND 478	62.5	37.5	81	17	2	77.0	1.66	12.9	S	56.7	.40	11.7	N	S	S	67.0	2	67.0	2-1/2	M-S	110 SLC	95	179	S
ND 479	62.0	40.2	87	11	2	77.3	1.65	12.3	S	52.2	.45	11.6	N	Q	Q	64.7	2	64.7	1-1/2	W	95 C	90 H	149	U
Wisc. 261	63.0	38.9	73	24	3	76.5	1.54	11.2	S	58.2	.40	10.1	N	VS	VS	60.7	2	60.7	3	M	100 C	95 S10	169	Q
Wisc. 270	62.5	41.2	81	16	3	76.9	1.59	11.4	S	57.3	.37	10.3	N	VS	VS	62.5	2	62.5	3-1/2	M	105 SLC	95	175	S
Wisc. 271	62.5	38.9	70	27	3	76.4	1.52	11.3	S	59.0	.35	10.2	N	VS	VS	61.6	2	61.6	3-1/4	M	100 SLC	95	163	Q

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White, * - Smut.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.

TABLE 23

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Sheridan, Wyoming

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. 2/ %	Wht. Min. 2/ %	Kern. Pro. 2/ %	Flr. Ext. 2/ %	Min.@ 5%Ex. 2/ %	Flr. Pro. 2/ %	Mlg. Char. 2/ %	Mlg. Pet. 3/ %	Mix. Abs. 2/ %	Mix. Time 5/ %	Bake Abs. 2/ %	Mix. Time 5/ %	Dough Char. 6/ %	Crumb Color 7/ %	Crumb Grain g/ g/	Loaf Vol.	Bake Eval. 3/ %			
				Lg.	Med. Sm.																			g.	%	%
Chris	13751	62.5	28.6	7	90	3	73.2	1.56	13.6	S	57.5	.40	15.1	N	S	66.3	4	66.3	3	S	115	S1C	80	0	209	S
	13462	62.0	32.2	45	53	2	75.2	1.64	16.9	S	56.9	.37	15.8	N	S	67.0	4	67.0	4-1/4	S	105	S1C	70	01	212	S-Q
	13775	62.0	27.6	8	90	2	73.3	1.48	15.8	S	57.1	.41	14.9	N	S	62.8	2	62.8	2	M-S	90	S1C	90		190	Q
	3641	63.5	31.0	31	67	2	74.5	1.54	15.4	S	56.5	.41	14.2	N	S	63.2	2	63.2	2-3/4	S-N	110		95		187	S
	13100	61.0	33.2	35	63	2	74.7	1.56	13.2	S	60.2	.40	14.4	N	S	64.2	3	64.2	3-1/4	M-S	100	S1C	95		175	S
Thatcher	10003	62.0	40.5	17	81	2	73.8	1.54	15.4	S	59.3	.42	15.0	N	S	65.3	2	65.3	2-1/2	M-S	105	S1C	90	0	190	S-Q
	RL 4200	62.0	29.7	14	84	2	73.6	1.52	16.2	S	56.4	.40	15.2	N	S	64.2	2	64.2	2	M	100	C	90	0	177	Q
	13773	63.5	35.7	52	45	3	75.5	1.57	15.9	S	59.4	.40	14.9	N	S	66.3	4	66.3	3-1/4	S-M	100	S1C	80	0	202	S
	II-55-16	64.0	38.3	67	31	2	76.3	1.44	15.8	VS	58.8	.47	14.5	N-S	Q	66.3	4	66.3	3-1/4	S-M	105	S1C	80	0	207	S
	II-56-40	63.0	34.5	43	55	2	75.1	1.48	16.0	S	59.2	.36	15.8	N	S	65.3	6	65.3	7	S	105		80	0	227	Q
II-59-91	62.0	30.0	18	79	3	73.8	1.47	15.8	S	56.6	.39	14.7	N	S-Q	S	65.3	4	65.3	4	S-M	100	S1C	95	S10	192	S
	13937	63.0	37.9	51	46	3	75.4	1.46	15.1	S	57.5	.40	14.7	N	S	65.0	3	65.0	3-1/2	M-S	100		90	I	184	S
	ND 363-1	62.0	32.2	39	59	2	74.9	1.55	16.0	S	59.4	.38	15.2	N	S	66.6	5	66.6	4-1/4	S-M	105	S1C	90		200	S
	ND 478	61.0	31.2	35	63	2	74.7	1.67	16.7	S	59.4	.40	15.6	N	S	67.6	5	67.6	4-1/2	M-S	105	S1C	95		185	S
	ND 479	61.5	32.5	51	46	3	75.4	1.46	16.1	S	56.7	.37	15.1	S-N	Q	66.3	3	66.3	1-3/4	M	110		90	10	198	Q
Misc. 261	62.5	30.1	7	90	3	73.2	1.46	14.6	S	61.0	.40	13.9	N	S	S	63.2	3	63.2	4	M-W	105	C	95	S10	189	Q
	62.0	32.2	34	63	3	74.6	1.58	14.9	S	59.8	.38	13.4	N	S	S	64.7	3	64.7	4	M-S	105	S1C	95		195	S
	62.0	31.7	9	87	4	73.3	1.54	14.8	S	60.9	.40	13.9	N	S	S	63.8	3	63.8	4	M	100	C	95		183	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.



AVERAGE OF QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

1967 CRG

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht.		Uht. Pro.	Korn. Char.	Flr. Ext.	Min. @ 65% Ex. Pro.		Mlg. Char.	Mls. Per.	Min. Abs.		Bake Abs.	Min. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.	Gen. Eva.
				%	%	%	%	%	%	%	%	%	%			%	%	%							
Chris	13731	61.5	26.6	19	76	5	73.7	1.62	15.2	S	58.1	.47	14.6	N	S-Q	64.8	4	64.8	3	S-M	105	90 IO	980		
Justin	13462	60.9	30.2	31	65	4	74.4	1.74	15.6	S	57.9	.44	14.8	N	S	66.1	6	66.1	4-1/4	S	100	95 S10	975		
Manitou	13775	60.8	26.4	19	75	6	73.7	1.62	15.3	S	58.2	.45	14.4	N	S	63.5	4	63.5	3	S	100	90	990		
Marquis	3641	59.9	26.1	15	76	9	73.4	1.68	14.1	S-Q	55.4	.48	13.2	N-S	Q	62.6	4	62.6	3-1/4	S-M	105	90 OI	970		
Selkirk	13100	59.0	33.3	25	70	5	74.0	1.67	14.5	S	59.5	.45	13.9	N	S	63.9	4	63.9	3-1/2	S-M	100	90 I	950		
Thatcher	10003	60.4	26.1	12	81	7	73.3	1.63	14.7	S-Q	57.9	.47	13.9	N	S-Q	63.4	4	63.4	3	S	105	90 IO	950		
RI 4200	61.1	29.1	25	72	3	74.1	1.63	15.2	S	S	56.9	.47	14.4	N	S-Q	63.5	3	63.5	2-1/2	S-M	105 S1C	90	1100	Q-U	1
II-55-11	13773	62.6	34.2	37	60	3	74.7	1.63	15.0	S	57.8	.45	14.1	N	S	64.5	5	64.4	4-1/4	S	110 N	95 S10	1100	S	4
II-55-16	62.8	35.1	40	55	5	74.8	1.58	14.5	S	S	56.9	.45	13.6	N	Q-S	64.6	5	64.6	4	S	110 S1C	90 I	1020	S-Q	2
II-56-40	61.4	32.3	31	65	4	74.4	1.60	14.5	S	S	57.9	.42	13.8	N	S	62.6	8	62.6	6-1/2	VS	110	95 S1I	1040	Q	3
II-59-91	60.6	28.0	21	74	5	73.8	1.63	14.7	S	S	56.3	.46	13.8	N-S	Q-U	64.9	6	64.9	5	S	105	95	1015	S	1
61-107	13937	61.1	35.5	42	54	4	74.9	1.56	14.7	S	56.0	.44	14.2	N-S	Q	64.1	4	64.1	3-1/4	S-M	110	90 I	970	Q-S	1
ND 363-1	13828	60.7	31.5	37	59	4	74.7	1.68	15.4	S	58.3	.45	14.5	N	S	65.2	6	65.2	4	S	100	80 IO	1010	S-Q	3
ND 478	60.1	31.0	35	62	3	74.6	1.71	15.6	S	S	58.4	.42	14.9	N-S	S-Q	66.8	6	66.8	4-3/4	S	105	95 S10	1100	S	3
ND 479	60.5	31.5	39	58	3	74.8	1.67	15.1	S	S	56.1	.44	14.4	N-S	Q	66.5	4	66.5	2	M	100	90 0	1050	U-Q	1
Wisc. 261	60.7	28.4	17	75	8	73.5	1.61	14.4	S	S	58.8	.42	13.6	N	S	63.7	6	63.7	5-1/2	S	100 S1C	90	1010	Q-S	2
Wisc. 270	60.2	30.4	25	70	5	74.0	1.63	14.5	S	S	57.6	.41	13.5	N-S	Q-S	64.7	7	64.6	5-1/2	S	110	90	1150	Q-S	2
Wisc. 271	60.2	28.6	21	73	6	73.8	1.62	14.5	S	S	58.8	.42	13.6	N	S-Q	63.8	7	63.7	5-1/2	S	100	90 I	980	S-Q	3

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soogy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 26

QUALITY DATA ON SAWFLY YIELD NURSERY SAMPLES

Dutton, Montana

1967 C30P

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Lg. Med. Sm.	Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Flr. Min. @ 65% Ex.	Flr. Pro. Char.	Mlg. Per.	Mix. Abs. Pat.	Bake Abs. Pat.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.		
				%	%	%	%	%	%	%	%	%	%	%	min.	%	%	g/	cc.			
Chinook	13220	60.5	29.6	19	77	4	73.8	1.70	13.2	S	13.2	S	S-Q	60.3	1	60.3	2-1/4	M	120 BC	95 H	157 Q-S	
Cypress	13344	60.0	27.0	5	90	5	73.0	1.51	13.6	S-Q	13.6	S-Q	Q-S	62.3	2	62.3	2-3/4	M	110 C	95 H	170 S	
Fortuna	13596	60.0	37.9	44	54	2	75.1	1.34	13.7	VS	13.7	VS	S	61.0	2	61.0	2-1/2	M-S	100 C	95 H	170 S	
Rescue	12435	59.0	29.2	11	85	4	73.4	1.44	13.4	S	13.4	S	S	60.0	2	60.0	2-3/4	N	120 BC	80 OH	177 S-Q	
Sawtana	13304	59.0	28.9	4	92	4	73.0	1.40	13.8	Q-S	13.8	Q-S	S	61.6	2	61.6	2-3/4	M-S	110 C	90 H	176 S-Q	
Thatcher	10003	58.5	28.3	9	88	3	73.3	1.56	14.0	S-Q	14.0	S-Q	Q-S	60.0	2	60.0	2-1/2	M-S	110 C	90 OH	165 S-Q	
QLS-201	59.5	32.5	37	61	2	74.8	1.35	14.6	S	54.0	.43	13.6	N	64.4	3	64.4	4	S	115	95	192 S	
QSF-254-3A	58.5	27.2	5	90	5	73.0	1.63	14.9	S-Q	53.6	.46	13.5	N	60.3	1	60.3	2	M-S	95	90 H	194 S-Q	
Q72-5135	58.0	32.6	39	58	3	74.8	1.51	15.4	S-Q	57.1	.47	15.0	N	64.2	4	64.2	4	S	95	70 OH	188 Q	
7169-293	59.5	30.3	15	82	3	73.6	1.29	15.0	S	53.6	.38	14.7	N-S	63.2	3	63.2	3-1/2	M-S	120 C	95 H	176 S	
7530-433	58.0	33.1	43	53	4	75.0	1.44	15.0	S	57.6	.39	14.0	N	61.0	1	61.0	2	S-M	110 C	90 H	172 S-Q	
7530-445	59.5	33.6	45	53	2	75.2	1.45	14.9	S	56.4	.39	13.8	N	60.3	1	60.3	1-1/2	M	120 C	95 H	178 Q	
7169-88	59.5	34.0	20	79	1	74.0	1.34	15.4	S	55.0	.36	14.7	N-S	64.2	2	64.2	2-3/4	M-S	115 C	90 OH	183 S-Q	
7532-2	59.5	30.3	9	88	3	73.3	1.51	15.8	S	56.7	.39	14.8	N	62.5	2	62.5	1-3/4	M-S	115 C	80 OH	189 Q	
7530-436	59.0	30.3	24	74	2	74.1	1.50	16.7	S	54.8	.43	15.9	N-S	62.5	2	62.5	1-3/4	M-S	120 VC	90 H	165 Q	
MT 6669	60.0	31.3	34	63	3	74.6	1.61	12.3	VS	53.6	.44	10.5	N	59.0	1	59.0	2-1/4	M-SLD	90	90 CH	141 U	
MT 6671	60.0	29.3	34	63	3	74.6	1.64	13.7	S	55.2	.42	12.3	N	59.7	1	59.7	2	M	110	95 H	159 Q	
MT 6679	59.5	32.5	43	54	3	75.0	1.53	15.2	S	51.9	.43	13.4	S	60.3	2	60.3	2-1/4	M	100	95 SLOH	174 S	
S6529	57.5	28.2	17	80	3	73.7	1.55	14.3	S-Q	55.7	.45	13.7	N	61.3	3	61.3	3-1/2	M-S	90	90 I	190 S-Q	
S6555	58.5	33.8	40	58	2	74.9	1.39	13.2	S	56.7	.40	12.7	N	60.3	2	60.3	2-3/4	M	120 C	90 CH	155 Q	
S6579	59.0	34.1	43	55	2	75.1	1.43	14.0	VS	57.1	.42	13.5	N	63.5	3	63.5	3-1/2	M	110 C	95 H	171 S	
S6589	59.0	34.7	50	49	1	75.5	1.46	14.2	VS	55.7	.45	13.4	N	61.9	2	61.9	2-1/2	M	115 SLC	90 H	165 S	
61-107	13937	59.0	36.2	48	50	2	75.3	1.43	13.4	VS	57.9	.41	13.2	N	61.3	2	61.3	2-1/4	M	115 SLC	95 H	169 S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SL - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SL - Slightly, C - Close, H - Harsh.

TABLE 27

QUALITY DATA ON SAWFLY YIELD NURSERY SAMPLES

Havre, Montana

1967 C30P

C.I. No.	Variety or Sel. No.	T.W. #/Bu.	1000 Kwt.	Kernel		Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Flr. Min.@ 65%Ex.		Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.	
				Lg.	Med. Sm.						%	%												%
				%	%	%	%	%	%	%	%	%	%	%	%	%	%	min.	6/	7/	8/	cc.		
13220	Chinook	58.5	22.0	0	80	20	72.0	1.74	17.6	S	57.5	.50	16.9	N	S	67.0	6	S	90	SLG	80	0	192	S
		59.0	18.2	0	47	53	70.4	1.85	18.8	Q-S	55.2	.56	18.2	N	Q-S	69.1	6	S	85	SLG	70	0	211	S-Q
		59.0	26.2	2	89	9	72.7	1.69	17.8	S	57.3	.53	17.4	N	S	66.6	6	S	80	SLG	80	I	212	S
		56.0	16.9	0	40	60	70.0	1.89	18.9	Q-S	58.7	.53	18.0	N	S	69.4	8	S	83	SLG	70	OI	213	S-Q
		58.0	19.0	0	64	36	71.2	1.82	19.1	S-Q	59.1	.54	17.3	N	S	67.9	6	S	80	SLG	90	0	200	S
10003	Thatcher	55.5	18.0	0	67	33	71.4	1.87	18.7	Q-S	56.3	.55	17.7	N	S-Q	67.0	5	S	90	SLG	70	OI	211	S-Q
		55.0	19.5	0	75	25	71.8	1.75	18.1	Q	54.9	.59	17.5	N	Q	68.8	10	S	90	SLG	95		202	S
		56.0	17.7	0	50	50	70.5	1.89	18.6	S-Q	57.1	.51	17.9	N	S	68.5	6	S	95	SLG	80	0	231	S
		56.0	22.0	0	87	13	72.4	1.98	19.7	S-Q	56.3	.61	17.6	N	S-Q	70.3	7	S	95	SLG	90		191	S
		55.5	18.4	0	52	48	70.6	1.84	19.1	Q-S	57.3	.49	18.8	N	S	70.7	8	S	90	SLG	70	0	195	S-Q
7530-433	7530-433	58.0	21.5	0	84	16	72.2	1.78	18.1	S	58.9	.49	17.2	N	S	67.9	7	S	90	SLG	80	0	203	S
		58.5	21.5	0	85	15	72.3	1.74	17.7	S	57.9	.52	16.9	N	S	66.3	5	S	85	SLG	90		199	S
		58.0	21.8	0	74	26	71.7	1.75	18.8	S-Q	58.5	.45	18.0	N-S	S-Q	70.5	6	S	100	C	88	0	190	S
		57.0	17.4	0	48	52	70.4	1.93	19.1	S-Q	57.0	.54	18.3	N	S	70.0	6	S	95	VC	70	0	196	S-Q
		62.0	23.3	2	92	6	72.8	1.68	17.1	S	57.7	.54	16.2	N	S	64.2	5	S	105	VC	90	0	181	S
MT 6669	MT 6669	57.0	19.1	0	68	32	71.4	1.79	17.4	S-Q	57.0	.50	16.4	N	S	67.0	8	S	95	VC	80	0	192	S
		60.0	22.4	0	85	15	72.3	1.72	17.0	S	59.2	.51	15.9	N	S	65.3	7	S	100	C	90	OI	188	S
		58.0	22.4	1	85	14	72.4	1.74	17.4	S	55.7	.55	16.3	N	Q-S	65.7	8	S	95	C	85	OI	193	S
		54.5	21.9	0	82	18	72.1	1.85	19.7	Q	58.2	.53	19.4	N	S	68.5	6	S	90	DC	90	0	195	S
		55.5	23.3	0	84	16	72.2	1.66	17.9	S	56.3	.47	17.4	N-S	Q	66.6	8	S	100	VC	90	0	209	S
S6579	S6579	56.0	23.5	0	84	16	72.2	1.62	17.9	S	57.9	.45	17.5	N-S	Q-S	67.9	8	S	95	VC	85	OI	215	S
		58.0	24.3	0	88	12	72.4	1.73	17.8	S	54.2	.56	17.1	N-S	Q	66.0	6	S	110	VC	90	I	215	S
		57.0	25.4	0	90	10	72.5	1.71	17.6	S	56.1	.45	17.3	N	S	66.0	6	S	105	C	70	IO	220	S-Q
13937																								

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, N - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close, H - Harsh.

TABLE 28

QUALITY DATA ON SANFELY YIELD NURSERY SAMPLES

Sidney, Montana

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Lg.	Size Med. Sm.	Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Min. 65%Ex.	Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
							2/	7	2/	7	%	2/	7	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/
Chinook	13220	62.5	28.2	2	94	4	1.47	14.9	S	59.2	.38	14.2	N	S	63.5	3	63.5	4-1/2	M	105 SLC	95 C	164	S-Q
Cypress	13344	62.5	24.6	1	92	7	1.64	16.7	S	56.9	.44	16.0	N	S-Q	67.0	6	67.0	5-3/4	S	95 SLC	95	194	S
Fortuna	13596	62.0	33.8	13	84	3	1.54	15.0	S	59.2	.40	14.3	N	S	63.2	5	63.2	4-3/4	M-S	100 SLC	95	177	S
Rescue	12435	61.5	23.6	1	92	7	1.57	16.7	S	58.5	.41	13.7	N	S	62.8	6	62.8	6-1/2	M-S	105 C	95 C	174	S
Sawtana	13304	61.5	24.4	0	92	8	1.59	14.8	S	60.8	.43	14.3	N	S	65.0	5	65.0	4-1/2	M-S	95	100	178	S
Thatcher	10003	60.3	23.4	1	92	7	1.60	15.5	S	58.0	.42	14.9	N	S	63.2	5	63.2	4-1/4	M-S	100	95	179	S
QLS-201		61.0	30.8	18	78	4	1.52	14.5	S	55.7	.45	13.9	N	Q	65.7	6	65.7	6-3/4	M-S	95	95	179	S
QSF-254-3A		60.0	23.6	1	86	13	1.70	15.7	Q	56.4	.44	15.0	N	Q-S	64.7	5	64.7	4-1/4	S	100	80 IO	195	Q-S
Q72-5135		60.0	29.0	9	85	6	1.70	15.9	S	58.5	.47	15.4	N	S-Q	67.0	6	67.0	5-3/4	M-S	95	90 T	168	Q
7169-293		61.5	28.5	2	94	4	1.53	15.5	S	55.5	.40	14.9	N-S	Q	66.6	6	66.6	6-1/4	S	90	90 OT	180	Q
7530-433		61.5	29.3	7	89	4	1.52	15.0	S	59.4	.36	14.4	N	S	64.2	6	64.2	6-1/4	M-S	105	95 C	187	S
7530-445		62.0	28.5	14	82	4	1.48	15.0	S	58.5	.38	14.0	N	S	62.5	4	62.5	4	M-S	100	92 C	177	S
7169-88		62.0	28.7	2	94	4	1.52	15.1	S	56.9	.36	14.5	N-S	Q	65.7	5	65.7	5-1/2	S	105	90 H	177	Q-S
7532-2		62.0	23.8	1	92	7	1.60	15.9	S	59.0	.41	15.0	N	S	64.7	4	64.7	3-3/4	S-M	105 SLC	90 H	164	Q-S
7530-436		63.0	28.1	20	77	3	1.57	15.8	S	58.0	.44	15.2	N	S	63.5	4	63.5	4-1/4	S-M	105	88 H	172	Q
MT 6669		61.5	26.3	3	92	5	1.47	14.1	S	56.9	.39	13.0	N	S	63.2	5	63.2	5-1/4	S-M	100	90	166	S
MT 6671		62.5	28.6	1	95	4	1.51	15.3	S	59.0	.38	14.1	N	S	62.8	4	62.8	4-1/2	S	90	90 IO	162	Q
MT 6679		61.0	26.5	2	93	5	1.58	15.6	S	55.9	.40	14.4	N	Q	66.3	6	66.3	6-3/4	S	90	80 I	162	Q
S6529		59.0	29.2	7	87	6	1.56	16.0	S-Q	59.5	.40	15.2	N	S	66.6	5	66.6	5	S	100	90 I	181	S
S6555		60.0	29.7	6	89	5	1.34	15.3	S	56.3	.39	14.8	N-S	Q	66.3	6	66.3	6	S-M	105 C	95 C	169	S
S6579		59.5	31.8	7	88	5	1.55	15.3	S	57.3	.39	15.0	N	S	66.3	6	66.3	5-3/4	S-M	95 C	90 HT	169	Q
S6589		61.5	31.7	11	86	3	1.49	15.1	S	56.3	.44	14.0	N	Q	64.2	5	64.2	4-1/4	M-S	95	95 TH	165	Q
61-107	13937	60.5	31.2	9	87	4	1.52	16.2	S	57.1	.41	15.4	N	S	65.7	4	65.7	4-1/4	M-S	95	95 T	165	Q-S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.



TABLE 29

QUALITY DATA ON SAMPLY YIELD NURSERY SAMPLES

Fargo, North Dakota

1967 CR02

C.I. No.	Variety or Sel. No.	T.N. 1/ #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min. 2/ %	Wht. Pro. 2/ %	Kern. Char. 3/ %	Flr. Ext. 2/ %	Min.@ 65%Ex. 2/ %	Flr. Pro. 2/ %	Mlg. Char. 4/ %	Mlg. Per. 3/ %	Mix. Abs. 2/ %	Mix. Pat. 5/ %	Bake Abs. 2/ %	Mix. Time	Dough Char. 6/ %	Crumb Color 7/ %	Crumb Grain 8/ %	Loaf Vol.	Bake Eval. 3/ %	
				Lg. %	Med. %																			Sm. %
13220	Chinook	63.0	30.3	13	86	1	73.6	1.56	14.0	S	60.7	.37	13.2	N	S	62.8	3	62.8	3-1/4	M	95 C	95 C	171	S-Q
13344	Cypress	62.5	28.2	5	91	4	73.1	1.58	14.1	S-Q	59.4	.37	13.2	N	S	63.2	4	63.2	4	M	110 VC	95 C	177	S
13596	Fortuna	64.0	41.0	61	38	1	76.0	1.44	14.4	VS	61.8	.35	13.3	N	S	62.3	3	62.3	3-1/4	M	105 C	95 C	170	S
12435	Rescue	63.0	27.5	4	92	4	73.0	1.67	14.9	S-Q	60.2	.38	13.8	N	S	62.3	3	62.3	4-1/2	M-S	110 VC	95 C	169	S
13304	Sawtana	63.0	26.4	6	90	4	73.1	1.68	14.5	S-Q	62.3	.42	13.3	N	S-Q	62.5	3	62.5	4	M-S	110 C	95 C	169	S
10003	Thatcher	62.5	27.8	7	91	2	73.3	1.54	14.8	S	59.9	.37	13.5	N	S	61.3	2	61.3	2-1/2	M	115 SLC	95	186	S
	QLS-201	62.5	31.7	36	62	2	74.7	1.54	14.2	S	57.5	.40	13.0	N	S-Q	63.5	4	63.5	5	M	110 SLC	95	174	S
	QSF-254-3A	63.0	28.4	4	94	2	73.1	1.66	14.0	S-Q	58.3	.39	12.8	N	S-Q	60.3	2	60.3	3	M	105 SLC	95 SII	184	S-Q
	Q72-5135	63.0	32.9	49	50	1	75.4	1.61	15.0	S	59.9	.42	14.3	N	S-Q	64.7	4	64.7	4-1/2	S-M	100 SLC	95	173	S
	7169-293	62.0	28.8	5	92	3	73.1	1.59	13.8	S	56.7	.35	12.7	N-S	Q	61.9	5	61.9	5-1/2	M	110 C	95 S10	181	S
	7530-433	64.0	34.6	50	48	2	75.4	1.54	13.6	VS	59.9	.35	12.5	N	S	62.3	3	62.3	3-1/4	M	110 SLC	90 OI	170	S
	7530-445	64.0	32.6	43	56	3	75.0	1.50	14.4	VS	59.7	.35	13.2	N	S	61.9	2	61.9	2-1/2	M-S	115 SLC	92 0	185	Q-S
	7169-88	63.5	29.5	10	88	2	73.4	1.49	12.6	S	58.3	.33	11.6	N-S	Q	61.0	3	61.0	4	M	110 SLC	95 C	160	Q-S
	7532-2	64.0	27.9	3	96	1	73.1	1.58	14.0	S-Q	59.4	.36	13.0	N	S	61.9	3	61.9	2-3/4	M	105 SLC	90	175	S-Q
	7530-436	63.5	31.0	41	58	1	75.0	1.60	14.6	S	57.1	.47	13.0	N	Q	61.9	3	61.9	3-1/4	M-S	120 C	95	162	S-Q
	MT 6669	62.5	28.4	7	89	4	73.2	1.48	11.2	S	55.5	.41	9.9	N-S	U	58.1	2	58.1	3-3/4	S1D	115 SLC	95 C	159	U
	MT 6671	63.5	30.0	13	85	2	73.6	1.47	11.8	S	58.8	.35	10.6	N	S-Q	58.1	2	58.1	3	M	110 SLC	105 S10	162	Q
	MT 6679	64.0	34.2	43	56	1	75.1	1.43	13.1	S	56.6	.37	12.0	N	Q	60.3	4	60.3	4	M	100	95 C	160	S-Q
	S6529	63.0	35.2	38	62	0	74.9	1.50	15.0	S	60.4	.36	14.2	N	S	63.2	3	63.2	3-1/4	S-M	115	92 OI	172	S-Q
	S6555	64.0	40.3	66	33	1	76.3	1.40	14.0	VS	59.0	.34	12.9	N	S	62.5	5	62.5	4-1/2	M	110 SLC	95 C	165	S
	S6579	63.5	39.7	64	35	1	76.2	1.37	13.9	VS	59.9	.33	13.1	N	VS	63.2	4	63.2	4	M	115 SLC	95 C	163	S
	S6589	64.5	38.5	60	40	0	76.0	1.46	14.5	VS	56.6	.41	13.2	N	S	62.8	3	62.8	2-3/4	M	120 SLC	95 C	165	S-Q
13937	61-107	64.0	40.8	69	30	1	76.4	1.40	14.6	VS	56.6	.38	13.8	N	S-Q	63.2	3	63.2	2-1/2	M-S	120	95 C	165	S-Q

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.



TABLE 30

QUALITY DATA ON SAWFLY YIELD NURSERY SAMPLES

Williston, North Dakota

1967 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Min. @ 657 Ex.		Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				g.	%	%	2/ %	2/ %	3/ %	7	2/ %	2/ %	2/ %	2/ %	3/ %	2/ %	2/ %	2/ %	2/ min.	6/ %	2/ %	8/ %	cc.	2/ %
Chinook	13220	61.0	26.1	6	89	5	73.1	1.45	16.7	S	57.1	.37	15.8	N	S	66.3	5	66.3	4-3/4	S-M	105 S1C	95	172	S
Cypress	13344	60.0	25.6	3	92	5	72.9	1.47	16.9	S	55.0	.40	16.0	N-S	Q-S	66.3	6	66.3	6-1/4	S	95 C	90 0	200	S
Fortuna	13596	60.0	34.8	28	69	3	74.3	1.43	16.2	VS	56.1	.41	15.9	N	S	65.0	4	65.0	4-1/4	S	95 C	80 0	199	S-Q
Rescue	12435	59.5	23.6	1	92	7	72.7	1.48	17.2	S	54.5	.41	16.2	N-S	Q-S	66.0	7	66.0	7-1/2	N	95 C	80 0	199	S-Q
Sawtana	13304	59.5	22.8	1	90	9	72.6	1.51	17.2	S-Q	58.7	.42	16.5	N	S	65.7	7	65.7	7-3/4	N	90 C	85	183	S
Thatcher	10003	58.0	22.1	1	88	11	72.5	1.44	16.5	S-Q	55.9	.43	16.0	N	S-Q	63.5	4	63.5	4-1/4	S	100 C	80 0	218	S-Q
QLS-201	58.5	25.4	4	86	10	72.7	1.46	16.3	S	54.2	.47	15.6	N	Q	Q	67.0	8	67.0	11	S	95 C	95	197	S
QSF-254-3A	57.5	21.0	1	83	16	72.3	1.57	17.1	S-Q	54.2	.43	16.4	N-S	Q	Q	66.0	5	66.0	4-1/2	S	95 S1C	75 01	226	Q
Q72-5135	57.5	26.0	6	88	6	73.0	1.66	18.1	Q-S	56.1	.50	17.9	N	Q	Q	68.8	6	68.8	7-1/4	N	100 S1C	95 S10	179	S
7169-293	59.0	26.2	3	92	5	72.9	1.41	17.0	S	54.8	.39	16.4	N-S	Q	Q	67.9	6	67.9	6-1/4	M	105	70 01	222	Q
7530-433	59.5	25.8	3	90	7	72.8	1.53	16.9	S	58.8	.40	16.0	N	S	S	67.6	7	67.6	8-1/2	S	110 C	75 01	215	Q
7530-445	61.5	27.3	8	88	4	73.2	1.41	16.2	S	57.6	.43	16.0	N	S	S	65.0	4	65.0	4	S	105 S1C	90 0	206	S
7169-88	60.5	28.3	7	90	3	73.2	1.41	17.2	S	56.9	.41	16.7	N-S	S-Q	S-Q	67.0	5	67.0	4-1/2	S	100 C	85 0	207	S
7532-2	60.0	23.4	1	88	11	72.5	1.51	17.3	S	58.3	.41	16.9	N	S	S	67.0	5	67.0	4-1/2	S	100 C	85 0	207	S
7530-436	62.0	27.0	10	86	4	73.3	1.48	17.0	S	57.3	.44	16.4	N	S	S	64.7	5	64.7	4-3/4	S	100 C	90 0	194	S
MT 6669	60.0	18.3	2	88	10	72.6	1.47	16.1	Q-S	56.1	.41	15.1	N-S	S-Q	S-Q	64.7	7	64.7	7	S	100 S1C	95	196	S
MT 6671	61.5	25.8	2	92	6	72.8	1.41	16.2	S	57.1	.39	15.2	N	S	S	65.3	6	65.3	6-3/4	S-M	105 S1C	95	173	S
MT 6679	60.5	27.0	7	88	5	73.1	1.37	16.4	S	54.5	.40	15.1	N	S-Q	S-Q	64.7	7	64.7	6-3/4	S	100 S1C	95	178	S-Q
S6529	56.5	25.6	3	91	6	72.9	1.43	17.4	Q-S	57.1	.41	16.7	N	S	S	66.3	5	66.3	6-1/4	S	95 C	80 0	205	S-Q
S6555	58.0	28.1	4	91	5	73.0	1.29	16.2	S	55.7	.40	16.0	N-S	Q	Q	66.3	7	66.3	7-1/2	S	95 C	90	211	S
S6579	58.0	27.2	3	91	6	72.9	1.29	16.1	S	57.1	.40	15.9	N	S	S	65.7	7	65.7	7-1/2	S	95 C	75 0	225	Q
S6589	60.5	31.2	11	86	3	73.4	1.41	16.5	S	55.9	.44	16.2	N	S-Q	S-Q	66.3	5	66.3	5-1/4	S	100 C	95	205	S
61-107	13937	59.5	31.4	16	81	3	73.7	1.49	16.9	S	57.3	.40	16.5	N	S	66.6	5	66.6	5-1/4	S	105 S1C	90 0	209	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.



TABLE 31
QUALITY DATA ON SAWFLY KILLED NURSERY AVERAGES

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size			Pot. Yld.	Wht.		Kern. Char.	Flr. Ext.	Min. 65%Ex.	Flr. Pro.	Mlg. Char.	Mlg. Per.	Min. Mix.		Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.	Gen. Eval.
				Lg.	Med.	Sm.		2/ %	3/ %							2/ %	3/ %								
Chinook	13220	61.1	27.2	8	85	7	73.1	1.58	15.3	S	58.1	.42	14.5	N	S	64.0	4	64.0	4	M-S	103	92	171	S-Q	
Cypress	13344	60.8	24.7	3	82	15	72.4	1.61	16.0	S-Q	56.2	.45	15.3	N	Q-S	65.6	5	65.6	5	S-M	98	89	190	S	
Fortuna	13596	61.0	34.7	30	67	3	74.3	1.49	15.4	VS	58.0	.42	14.8	N	S	63.6	4	63.6	4	M-S	97	89	186	S	
Rescue	12435	59.8	24.2	3	80	17	72.4	1.61	15.8	S-Q	57.6	.43	14.8	N	S	64.1	5	64.1	5	M-S	102	84	186	S-Q	
Sawtana	13304	60.2	24.3	2	86	12	72.5	1.60	15.9	S-Q	59.7	.45	14.9	N	S	64.5	5	64.5	5	N-S	97	92	181	S	
Thatcher	10003	59.0	23.9	4	85	11	72.6	1.60	15.9	S-Q	57.0	.45	15.0	N	S-Q	63.0	4	63.0	4	M-S	103	86	192	S-Q	
QLS-201	59.3	28.0	19	72	9	73.5	1.52	15.5	S	55.3	.47	14.7	N	Q	65.9	6	65.9	6	7-3/4	S-M	101	95	189	S-Q	2
QSF-254-3A	59.0	23.6	2	81	17	72.3	1.69	16.1	S-Q	55.9	.45	15.1	N	Q-S	63.9	4	63.9	4	3-1/2	S-M	98	84	206	S-Q	2
Q72-5135	58.9	28.5	21	74	5	73.8	1.69	16.8	S-Q	57.6	.49	16.0	N	S-Q	67.0	5	67.0	5	5-1/2	S-M	97	88	180	S-Q	2
71169-293	59.5	26.4	5	82	13	72.6	1.53	16.1	S-Q	55.6	.40	15.5	N-S	Q	66.1	6	66.1	6	5-1/2	M-S	103	84	191	S-Q	2
7530-433	60.2	28.9	21	73	6	73.7	1.56	15.7	S	58.9	.40	14.8	N	S	64.6	5	64.6	5	5-1/2	S-M	105	86	189	S-Q	3
7530-445	61.1	28.7	22	73	5	73.8	1.52	15.6	S	58.0	.41	14.8	N	S	63.2	3	63.2	3	3-1/4	M-S	105	91	189	S-Q	3
71169-88	60.7	28.5	8	85	7	73.0	1.50	15.8	S	57.1	.38	15.1	N-S	S-Q	65.7	4	65.7	4	4-1/2	M-S	106	90	183	S-Q	3
7532-2	60.5	24.6	3	82	15	72.4	1.63	16.4	S-Q	58.1	.42	15.6	N	S	65.2	4	65.2	4	3-1/2	S-M	104	83	186	S-Q	2
7530-436	61.9	27.9	19	77	4	73.8	1.5	16.2	S	57.0	.46	15.3	N	S-Q	63.4	4	63.4	4	3-3/4	S-M	110	91	175	S-Q	2
MT 6669	60.2	24.7	9	80	11	72.9	1.56	14.2	S-Q	55.8	.43	13.0	N-S	Q-S	62.4	5	62.4	5	5-1/4	S-M	100	90	171	Q-S	2
MT 6671	61.5	27.2	10	84	6	73.2	1.55	14.8	S	57.9	.41	13.6	N	S	62.2	4	62.2	4	4-1/2	S-M	103	95	169	Q-S	2
MT 6679	60.6	28.5	19	75	6	73.7	1.53	15.5	S	54.9	.43	14.2	N-S	Q	63.5	5	63.5	5	5-1/2	S-M	97	90	173	S-Q	1
S6529	58.1	28.0	13	80	7	73.3	1.58	16.5	S-Q	58.2	.43	15.8	N	S	65.2	4	65.2	4	4-1/2	S-M	98	88	189	S-Q	3
S6555	59.2	31.0	23	71	6	73.9	1.42	15.3	S	56.8	.40	14.8	N-S	S-Q	64.4	6	64.4	6	5-3/4	S-M	106	92	182	S	3
S6579	59.2	31.3	23	71	6	73.9	1.45	15.4	S	57.9	.40	15.0	N	S	65.3	6	65.3	6	5-1/2	S-M	102	88	189	S-Q	3
S6589	60.7	32.1	26	70	4	74.1	1.51	15.6	S-VS	55.7	.46	14.8	N-S	Q-S	64.2	4	64.2	4	M-S	108	93	183	S-Q	2	
13937	60.0	33.0	28	68	4	74.2	1.49	15.7	VS-S	57.0	.41	15.2	N	S	64.6	4	64.6	4	M-S	108	89	186	S-Q	3	

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to Reference Mixograms for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

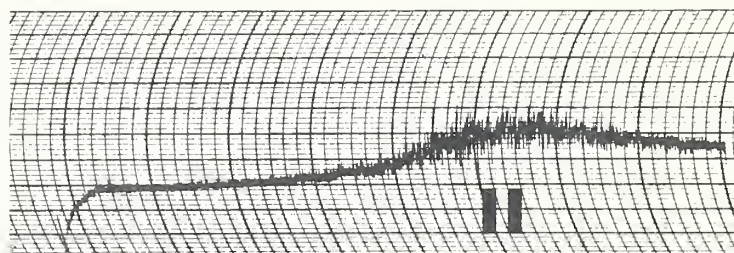
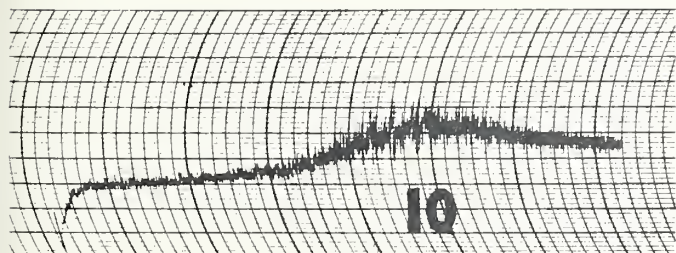
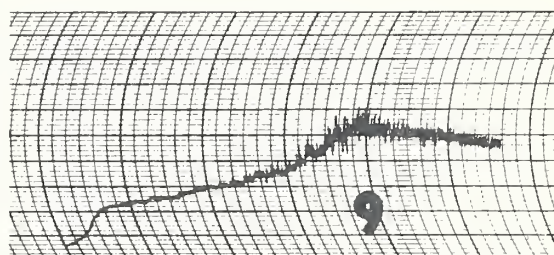
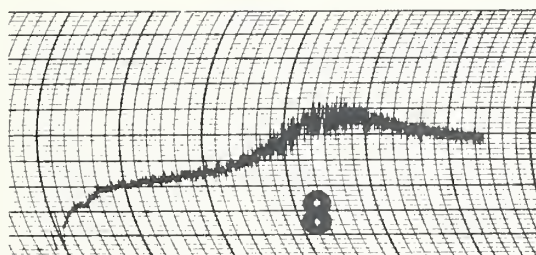
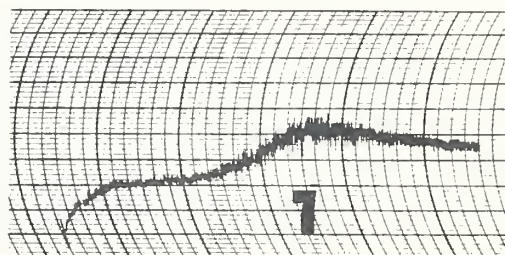
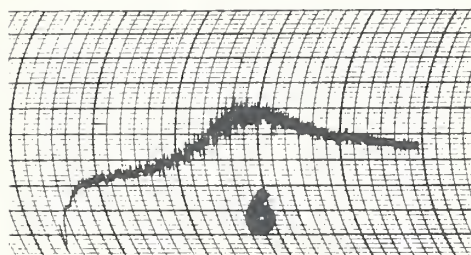
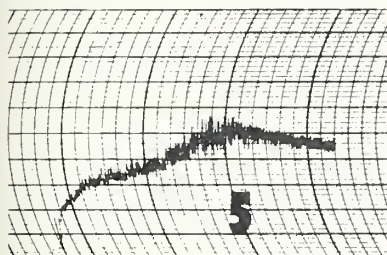
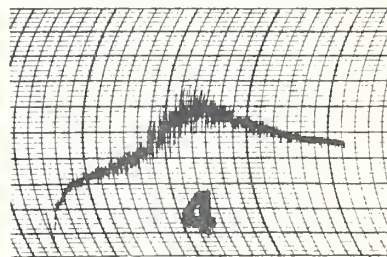
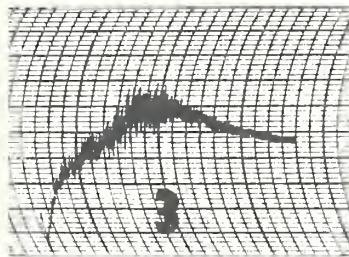
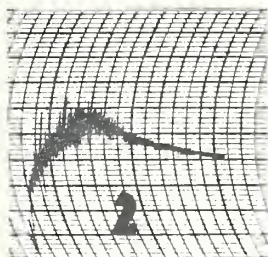
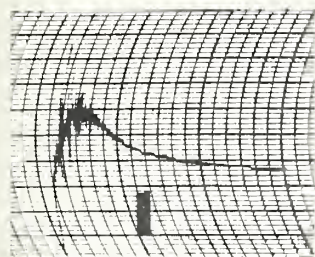
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.



REFERENCE MIXOGRAMS

HARD RED SPRING WHEAT



U.S.D.A. SPRING WHEAT QUALITY LABORATORY

FARGO, NORTH DAKOTA



